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ABSTRACT

Participation of minority students within health science career preparation programs is investigated in this study from the University of Washington. The history of minority admissions to medical and nursing schools throughout the country is reviewed. Health sciences programs for minorities at the university are discussed and the impact of the Preprofessional Program for Minority Students is assessed. Special biology, physics, and mathematics courses for Equal Opportunity Program students are described. An overview of each health science program at the University of Washington is included for the Schools of Medicine, Pharmacy, Dentistry, and Nursing, the Clinical Dietetics Program, Prosthetics and Orthodontics Program, and the Physical Therapy Program. Among the variables investigated by a survey of University of Washington minority students interested in the health sciences were: enrollment status, courses taken and grades received: work and volunteer experiences: sources of health science interest: grade point averages: and for those no longer enrolled, reasons for leaving the University. Survey results indicate a high attrition rate, 63 percent, for minority students in the health science field. Many factors were found to contribute to students' decisions to drop out including both academic and personal reasons. Along with statistical summaries of these data, the report includes suggestions for further research and a copy of the survey instrument. (Author/SF)

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A Study of Educational Opportunity Program (EOP) Students Within Health Science Career Preparation Programs

William H. James
Gerald M. Gillmore
Seth Chaiklin

Abstract

This exploratory study investigated 94 Educational Opportunity Program students who entered the University between 1974 and 1977 and enrolled in the health science pre-professional program. Information was gathered from University records of all students and from telephone interviews with 64 of the students. Among variables studied were enrollment status, courses taken and grades received, work and volunteer experiences, sources of health science interest, grade point averages and, for those no longer enrolled, reasons for leaving the University. Along with statistical summaries of these data the report includes a historical overview, description of health science programs, and suggestions for further research.

EAC Project Number 514

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A STUDY OF EDUCATIONAL OPPORTUNITY PROGRAM (EOP) STUDENTS WITHIN HEALTH SCIENCE CAREER PREPARATION PROGRAMS

William H. James
Gerald M. Gillmore
Seth Chaiklin

Introduction

In general, members of minority groups are underrepresented in the various health science related fields. Reasons are many and complex, ranging from inadequate high school preparation, lack of science preparation, lack of accurate information regarding career opportunities, to the devastating effects of racial, economic, social, and educational inequities that exist within society. Increasing minority representation cannot be accomplished with affirmative action programs alone, no matter how aggressive they may be, because almost all health science careers require specialized education at the post-secondary level, and many require even more advanced educational preparation.

The federally funded Health Careers Opportunity Program (HCOP)[1] at the University of Washington has as its ultimate goal the preparation of disadvantaged and minority students for careers in health sciences. Achievement of this goal requires two basic steps:

1. Minority and disadvantaged students must be attracted to educational programs which will prepare them for such careers.

2. Once attracted, minority students must successfully satisfy the educational requirements for the career; i.e., they must complete the educational program.

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1. Information regarding Health Career Opportunity Programs is available from: Health Resources Administration, Public Health Service, Department of Health, Education, and Welfare.

The research to be reported here was funded by HCOP and is exploratory in nature. Our investigations were primarily but not exclusively oriented toward the following four questions relating to Educational Opportunity Program (EOP) students who had shown an interest in a health science related career.

1. What factors were perceived as influential in the choice of a career in the health sciences?
2. What factors appear to be predictive of success in related educational programs?
3. What are the reasons given for attrition by those students no longer enrolled?
4. What U.W. courses are commonly taken by the students and of these which appear to be particularly difficult?

A secondary purpose of this study was to create a computerized file of student aptitude, attitude, and performance data to be available for extensive use by HCOP, Office of Minority Affairs, and Educational Assessment Center personnel in continued research. Before presenting the specific methods and results of the study, relevant literature will be reviewed and the University of Washington health science programs for minority students will be discussed.

Review of the Literature

The History of Medical Schools and the Black Colleges

The struggle for minorities to gain admission to medical schools started in the 1850's. Since there were no Black medical schools until 1868, all Black physicians who wanted to obtain formal training attended white schools if they could gain acceptance, or they studied abroad. A Black man, Dr. Delany had been rejected by four medical schools but was accepted by Harvard Medical School in 1850 (Morais, H.M., 1968, p. 8). Many other Blacks such as Dr. James McCune Smith and Dr. Alexander T. Augusta were forced to attend medical schools in foreign countries such as the University of Glasgow in Scotland and Trinity Medical College in Toronto, Canada. Dr. Augusta later became the first Black man to head a hospital in the United States.

By 1860, nine northern White medical schools were accepting Black students: Bowdoin in Maine, the Medical School of the University of New York, Caselton Medical School in Vermont, Berkshire Medical School in Pittsfield, Massachusetts, Bush in Chicago, Eclectic Medical School in Philadelphia, Homepathic College of Cleveland, American Medical College, and the Medical School of Harvard University (Curtis, J.L., 1971, p. 3). The training of Blacks was not a widespread practice and the few that were admitted usually had to practice in Liberia or other counties outside of the United states. In 1866, the predominantly Black college, Howard University in Washington, D.C., was founded, and two years later opened a medical school. The first minority medical student class represented thirteen states, the District of Columbia, six foreign countries and the West Indies. Meharry Medical College was founded eight years later

in 1876 and accepted mostly students from the South for medical training in Nashville, Tennessee.

In 1882, Leonard Medical School of Shaw University in Raleigh, North Carolina, was opened. The Louisville National Medical College followed in 1888, Flint Medical College of New Orleans opened in 1889, Knoxville Medical College opened in 1895, The Medical Department of the University of West Tennessee in Memphis was founded in 1900, and Chattanooga Medical School existed from 1902 to 1904. These predominantly Black medical schools graduated hundreds of physicians.

However, in 1908, Abraham Flexner was commissioned by the Carnegie Foundation for the Advancement of Teaching to conduct a study of medical education. His final report, entitled Medical Education in the United States and Canada, was published in 1910, and set the standard for medical schools and minorities medical education for the next fifty years. A section of the report evaluated the seven black medical schools, and Flexner recommended that all schools be closed except Howard and Meharry because they were ineffectual, wasted money, and produced undisciplined men who lacked real training. He further assumed that Blacks would only serve their own race and that hygiene be emphasized rather than surgery. Because a complete medical education includes internship and residency, specialization, and interaction with other professionals, minorities in medical schools encountered de jure and de facto discrimination after the Flexner report was issued.

Discrimination limited minority medical school admissions, and only the very exceptional students were accepted at some of the older medical schools

in the East, such as Harvard, Yale and Pennsylvania, and newer schools in the Midwest such as Michigan, Indiana, and Northwestern. Prior to World War II, all 26 of the 78 approved medical schools were located in the southern and border states and were closed to minority students until the National Association for the Advancement of Colored People began a long series of legal fights that resulted in a number of favorable decisions from the Supreme Court . By 1960, 14 out of the 26 segregated schools were making token admissions of minority students. Some of the 14 schools that reversed white-only admissions policies included the University of Arkansas, St. Louis University, the University of Texas, Washington University, University of Louisville, Medical College of Virginia, University of Maryland, and the University of North Carolina. By the fall of 1963, the Southern medical schools accepting minority students increased to nineteen and included Duke, Emory, Johns Hopkins, Baylor, Louisiana State, Vanderbilt, and the Medical College of Alabama. The summer of 1966 finally brought the acceptance of minorities to all the approved medical schools in the country.

Minorities and Medical School Admissions

Minority groups in America comprise nearly one fifth of the total population of the nation.[2] However, Sullivan (1977) reported that only one in every fifteen first year medical school seats is occupied by a minority group member, while the need for physicians in the minority group communities has been emphasized by Jackson (1972). This underrepresenta-

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[2]See the 1970 U.S. Census Bureau Report issued by the Department of Commerce. 1970 Census of population, Volume 1, Part 1. U. S. Department of Commerce, Bureau of the Census. Washington D. C.: U. S. Government Printing Office, 1973.

tion of minorities in the medical professions has resulted from a variety of factors resulting in educational inequity. Inadequate curricula in the public schools, inadequate preparation of the minority student, educational and societal discrimination, and the lack of a national committment to eradicate these and other factors serve to impinge upon the need to increase minority enrollment in medical professions.

Within the last decade some attention has been directed towards increasing educational equity for minorities aspiring for health careers. In 1970, the Association of American Medical Colleges task force recommended that representation of minority groups in M.D. programs be increased from 2.8 percent to 12 percent by 1975-76. Gordon (1977) reported that 1975-76 representation increased to 8.5 percent. Bingham (1978) illustrated a new approach to minority admissions vis-a-vis the simulated minority admission exercises (SMAE) that are designed to sensitize admissions committee members to the different backgrounds of minority applicants and teaches committee members how to evaluate the applicants more effectively. Also, Roberts and Plunkett (1974) identified fourteen institutions designed to promote minority student participation in health careers by offering special curricula developed to enhance occupational training. The authors also identified different sources of federal funding for the facilitation of these efforts. Additional programs designed to increase minority enrollment in health professional

schools have been highlighted by Diekema and Hilton (1972), Nelson, Bird and Rogers (1970-1971), and Reidman (1978). Evans and Jackson (1976) presented a rationale for medical schools to hire deans who are members of minority groups and also sensitive to the interests of minority students in medical schools.

Minority Medical Student Enrollment

The enrollment data for minority students in medical school presented by Dube (1977), Gordon (1977), Wellington and Montero (1978) and reports by the American Council on Education, indicated some improvement in the proportion of minority students in M.D. programs. Although progress has been made, formidable barriers remain for many minority group members desirous of entering the health professions. Along with overt and covert discrimination, the concept of "reverse discimination" poses a further obstacle to enrollment. Burke (1977) outlined multiple problems and concerns that minority students continually encounter, while the influence of social background and legal considerations regarding medical education are discussed by Haynes (1973) and Begun (1973), respectively. The extent to which income and race, viewed independently, affect selection of minority students, was analyzed by Waldman (1977). This analysis suggested that race had a far more significant influence on selection, than the traditional factors of selection such as the Medical College Admissions Test (MCAT).

Instrumental Research and Medical Schools

A survey of 113 medical schools conducted by Wyatt, Bass and Powell, (1978) examined the sociocultural factors of minority groups such as different value systems, early experiences, economic status, and ethnic backgrounds, and the influence of these factors upon the delivery of health care services. The survey concluded that these factors received minimal consideration

in curricula. Evans, Jones, Wortman, and Jackson (1975) evaluated the relationship between the medical college admissions test (MCAT), grade point average (GPA), the quality of undergraduate college attended and the preclinical performance of underrepresented (Astin Index) minority students enrolled at Case Western Reserve University of Medicine. The results of the study indicated that the Astin Index had the best predictive value of the three traditional variables.

The range, interest, and committment of individual medical school programs addressing educational inequality has varied tremendously. Two identifiable deterrents to positive action are fiscal and legal constraints. However, for positive change to continue, programs of action in many medical schools need to reaffirm their committments to the recruitment, training and support of minority students. Special programs must be developed to facilitate the chances of graduation, and these programs must be systematically evaluated to insure their utility.

Experiences with year-long tutorial programsfor minority students enrolled in medical school suggest that cognitive issues of students experiencing academic difficulty may not be resolvable without considering and dealing with affective issues (Geertsma 1977). Career training programs for minority students interested in allied health fields have been developed by Beck, Githens, Clinkscales, Yamamoto, Riley and Ward (1978), Gardner, Bokman and Tatsuguchi (1972), Odegaard (1977), and Quinones and Harmon (1975). More detailed analyses of minority students in allied health and science were presented in a conference report[1] to the Southern Regional Education Board in Atlanta, Georgia, and through an allied health counselor training program[2] sponsored by the Health Resources of Administration, Department of Health, Education and Welfare.

Nursing Programs and Minority Students

Haney, Michael and Martois (1977) examined the success of student nurses selected from three ethnic groups on a state board certification examination. Their success was predicted from student behavior, course grade point average, and standardized achievement tests administered prior to nursing program enrollment. A multiple regression analysis was used and the achievement tests proved to be the best predictors across the three groups.

A seven week course for senior minority nursing students was assessed by Orque (1976). The course focused on the health problems and belief systems of minority clients and was based upon a holistic and epidemiological approach to health care. In addition, the course included theory and practice in minority settings and the students felt the course was stimulating and useful. A full discussion of the admissions of men, Black students, Spanish-speaking students, American Indians and Asian-Americans to two-year and four-year schools of nursing during 1971-72 was presented by Johnson (1974).

Summer Health Science Programs for Minority Students

Several medical school programs have designed summer enrichment course work including symposiums, workshops, clinical experience, professional contacts, reading, study skills, basic science, and advanced science offerings. The aim of these programs is to provide educational and economically deprived minority students with supportive services and career information needed for entrance into medical schools.

The Meharry Medical College Biomedical Sciences Program was evaluated by Birch and Wolfe (1975) for the years 1969-73. This program was intended to recruit minority students from predominantly southern and Black colleges by providing summer science training after the junior year. The assessment of this program concluded that participants are more likely than a cross section of all applicants to gain admissions to medical and dental school. In another study, a matched comparison group design was utilized in Perry, Phillips and Mahan, (1976), to evaluate the impact of a summer health career program designed to attract minority students to health careers. The results indicated a significant difference on stability of first career choice, indicating that the program had an effect. Additional analyses of summer science programs have been conducted by Lea and Farias (1972), Levine, Williams and Bruhn, (1976) McPhail (1978), and Ortig and Kendler (1974).

Characteristics of Minority Group Medical Students

In a report compiled by Dube (1978), a comparison of the socio-economic background of different ethnic groups of medical students indicated distinct differences between Black, Hispanics and Asian-Americans in

the areas of parental income, language usage, occupation of father, occupation of mother, and educational attainment of parents. These group differences between socioeconomic backgrounds and the use of language suggest different needs for the ethnic group populations in terms of supportive services in medical school. Further evidence for a differential approach to the admissions and support of ethnic minority groups was presented in exploratory research by Kanfert, Martinez, and Quesada (1975) of Mexican-American medical students educated in California and Texas. Similarities with the majority of medical students were found, but significant differences in socioeconomic variables were evident. Sue, Sue, & Sue (1975) argued for a more realtistic appraisal of the status of Asian Americans, and presented the statistics related to family income, educational attainment of parents, interracial marriage, and mental health among the 435,000 Chinese, 434,000 Filipinos, and 591,000 Japanese that contributed to the surveys traditionally compiled by the United States Census Bureau.

Informational Systems for Minority Students

Concrete steps that schools must take to remedy the underrepresentation of minority groups in the health professions were presented in a report by Blewett (1974). This report illustrated how small institutions can join together in an educational consortium like the Philadelphia Center for Health Careers. The Center was designed to provide comprehensive health career information, counseling and guidance, admissions, financial aid and other supportive services for minority groups.

In addition, the Health Careers Information System (HCIS) is a national computerized mechanism developed by the Health Manpower Development Corporation and was designed to identify low-income and/or minority college students with expressed interests and demonstrated capacities for health careers. A full description of this information system was presented by Gunn (1975). Additional readings related to minorities and medical school are presented in the Supplementary References list.

Health Sciences Programs for Minorities at the University of Washington

Background for the Analysis

During the mid-seventies several initiatives to increase the involvement of minorities in the Health professions began at the University. One of these programs was the Preprofesional Program for Minority Students. This program was initially funded by the University with subsequent monies from the Special Health Career Opportunity Grants Program (HCOP) administered through the Department of Health, Education and Welfare. The purpose of the program was for the recruitment and subsequent retention of minority students in the health-related professional schools at the University. A major component of the Preprofessional Program was the offering of a three course sequence specifically designed to prepare minority students for entry into health science curricula. This sequence was offered as General Interdisciplinary Studies. (GIS 140, 141 and 142).

The goals and methods of GIS 140, 141, and 142 are summarized in the evaluation of the first year. Russell, Solomon, Anderson and Alba (Note 3) concluded in the first year evaluation report:

> "The data here confirms our speculations that the General Interdisciplinary Studies[3] (GIS) students start their university academic careers as do traditional EOP students, with less academic preparation than other college freshmen. In the past, minority students seeking a health science career have not entered health professional schools because of lack of efficient support mechanisms, insufficient information about what the health sciences offer, fear of rejection, and few peer success models. Development of a pool of successful minority students who tenanciously aspire to enter health professional schools and who possess the skills to survive will revolutionize our present ethnic University profile. If this program does increase the numbers of minority students in our health professions, four factors will have provided the spindle for student success: (1) human understanding (one-to-one relations with the program staff and student peers), (2) a slow down of the stated curriculum for tailored sequencing of pre-requisites to health science training, (3) continual use of tutorial support, and (4) high expectations that encourage students to coordinate their behavioral patterns with the self-concept demands of an academic and clinical health professional career."

After the first year of the program, the staff felt that some positive and some negative experiences had occurred and the program would need continued evaluation. Ten first year students entered GIS 140 during the autumn quarter of 1974, with five more joining GIS 141 during winter quarter of 1975. Of these fifteen, eleven completed GIS 142 in spring quarter, 1975. Successful students were defined as these eleven students with grade point averages greater than 2.0. The average GPA of GIS students during 1974-75 was 2.39, as compared

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[3] For a detailed description of the curricula, see Russell, M., Solomon, F., Anderson, E., and Alaba, O. First year evaluation report on the pre-professional program for minority students in health sciences 1974-1975. Preprofessional Program for Minority Students in Health Sciences, University of Washington, Seattle, 1976, page 1.

to the average University of Washington first-year student GPA of 2.81. The GPA of the 961 EOP first-year students was 2.36; therefore, the GIS students were similar in GPA to the overall EOP population. First-year students entering the University of Washington in 1974-75 scored an average of 55.6 verbal and 56.1 quantitative on the Washington Pre-College Test (WPCT). By comparison, five GIS students took the WPCT and averaged 39.0 and 38.4 respectively. The evaluation of the program indicated that the GIS students were not as well prepared for the university as regularly admitted students.

General Interdisciplinary Studies 1975-76

The second year of the Preprofessional Program commenced with fifty-four first and second year EOP students enrolled in GIS 140. Forty-three students took part in the spring Quarter GIS 142 Field Experience.[4]

A number of standardized tests were administered to the GIS students to measure academic skills, levels of motivation, study skills and habits. The Cooperative Science Tests in biology and general science were administered at the beginning and the end of the academic year, while the Brown-Holtzman Survey of Study Habits and Attitudes (1965) test was given during the autumn quarter 1975. Washington Pre-college Test[5] scores were available for some students, and tests developed by university staff in the areas of biology vocabulary, anatomy terms, health career knowledge, and fundamental mathematics skills were also administered to GIS students.

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[4]For a full description of the GIS 142 field experience, see Russell, M. and Anderson E. Second year evaluation report of the preprofessional program for minority students in health sciences 1975-76. Preprofessional Program for Minority Students in Health Sciences, University Hospital, University of Washington, Seattle, 1976, page 2.

[5]For information regarding the Washington Pre-college Testing Program contact Dr. Richard J. Noeth, Executive Director, 1400 N.E. Campus Parkway, Room 530, Seattle, WA 98195.

The GIS students were subsequently partitioned into two groups for analysis, one group of unsuccessful students with grade point averages (GPA) less than 2.0, and a group of successful students defined as those with GPA equal to or greater than 2.0.

Russell and Anderson (Note 4) summarized a number of statistical analyses between the two groups and the following data-based recommendations were developed:

"1. The standardized tests show very little difference between unsuccessful and successful students; thus, they are not sufficiently predictive to serve as an aid in counseling the students. Secondly, they are not specifically related to the content of courses that the GIS students take during the year; hence, they do not function as useful achievement measures. The class time used for testing can be better used for other course matters.

2. General knowledge tests such as the Washington PreCollege Test and general maturation tests such as the Survey of Study Habits and Attitudes show GIS students to be at a disadvantage in college when compared with all students admitted to the university. The test data merely confirms what was already known about the preparation of EOP students. Since there does not seem to be any reason to demonstrate this disadvantage year after year, we recommend that such testing be dropped from the GIS program. Individual scores on these examinations are not sufficiently predictive to aid counseling, hence the cost of such testing is not justified by counseling use.

3. The four audio-visual Vocabulary Slide Shows proved to be useful as a teaching tool as evidenced by immediate pre-test and post-test scores. Students demonstrated stored learning of health and health related terms when tested without warning at the end of the spring quarter. The emphasis on learning vocabulary should be sustained and expanded in upcoming years.

4. Will some of the GIS students showed mastery of the basic arithmetic and algebra skills measured with the mathematics proficiency test, the low average score indicates clear weakness in basic mathematics on the part of many of the students. Moreover, while the post test scores show some gain in knowledge over the year, the gain is not sufficient to provide the solid mathematical skills needed in the medical programs. Consequently, we are revising the mathematics skills tests to reflect later medical program needs more closely and encouraging program counselors to emphasize mathematics courses (e.g., trigonometry, algebra, finite, and functions) and to pay closer attention to the sequencing of the mathematics courses they are advising students to take. We are temporarily assuming that existing university mathematics courses can provide GIS students with the quantitative skills needed for medical programs, but should this assumption prove misleading, i.e., the general mathematical training of the mathematics courses may not transfer well to the specific quantitative skills needed in medical programs, we are prepared to develop mathematics skills classes to satisfy the specific needs of GIS students.

5. To further develop quantitative reasoning skills, a special section of Physics 101, 102, and 103 has been established for GIS students. The emphasis in this section will be upon applying fundamental mathematics to physical problems; concept formation and reasoning skills will be the focal point rather than specific physics content. The instructors of this section will measure the students quantitative skills before and after instruction. Since about half of the GIS students entering in 1976-1977 will not be taking these physics courses, we can discover whether the general reasoning emphasized in the courses will improve GIS performance in later medical programs.

6. In view of the low performance of the students on the Health Careers Awareness Test an attempt should be made to put the detail of the Health Career Awareness Test on Videotape, programmed slide show or extra written take home assignments. Otherwise exposure to the variety of health careers as covered in this test is too limited during the year.

7. The course content of Biology 103-C has been modified to specially emphasize biology related to later medical program courses (e.g., Microbiology 101, 301 and 302; Zoology 118-Human Anatomy and Function; and P.E. 205-Body Movement). Plant biology is being deemphasized and human biology is being stressed. Pre and post testing will occur on the specific topics being taught. Stored learning may surface as improved student performance in Microbiology 101 and Zoology 118."

In addition to these recommendations, a number of subjective recommendations were presented by Russell and Anderson. These included: (a) a Reading Test for all GIS students, (b) use of the Educational Assessment Center Student Rating Form for feedback on GIS classes, (c) professional development of GIS teaching assistants, (d) daily attendance records and required notetaking in class, (e) continued participation of university-wide faculty and staff in the Preprofessional Program, (f) a continuation of the GIS three quarter curricula, and (g) the increased use of advertisement material to facilitate the recruitment of minority students from respective high schools.

General Interdisciplinary Studies 1976-77

The third year of the Preprofessional program encompassed the GIS series; the special course sections of physics, mathematics, and biology; the Educational Opportunity Program (EOP) counseling component and study skills program, and an out-reach effort extending to community, regional and national groups interested in supporting the preprofessional program. Russell and Anderson (Note 5) provided a full description of the 1976-77 program.

The 1976-77 GIS students were assessed regarding available Washington PreCollege Test scores for 23 students. The mean verbal score was 41.35 and the quantitative score was 43.74, as compared to university

mean of 55 and 56. Because the test scores were viewed as stable over time and correlated highly with national pre-college tests, the GIS students were not expected to score high enough on entrance tests such as the Dental Aptitude Test (DAT) and the Medical College Aptitude Test (MCAT) to gain admittance to graduate school programs.

The Brown-Holtzman Survey of Study Habits and Attitudes (SSHA) was administered to 60 GIS students with a mean percentile of 43.66% for 44 successful students, (GPA greater than 2.0), and a mean percentile of 37.56 for 9 unsuccessful students (GPA less than 2.0). These differences were not statistically significant with $t = .636$ and 51 degrees of freedom. Also, the 60 students had a mean percentile 49.2% for the study habits section while 12 students that dropped out averaged 54.25%. The correlation between SSHA test scores and grade point averages for GIS students was .3, which indicates a very weak relationship.

The GIS students were also tested for reading speed, reading comprehension, and vocabulary. The test was locally prepared and the scores indicated no significant difference in reading speed between students who stayed in the program compared to those that dropped from the program. In addition, a pre and post test comparison of the 37 students that remained in the program indicated no gain in reading speed during the academic year. The reading comprehension test for students who remained in the program indicated an average pretest score of 65.83% with the mean on the vocabulary test at the 24th percentile of university first-year students.

A locally prepared test was administered to the GIS students with clear gains in mathematics skills indicated during the academic

year. Pre and post-test scores were highly correlated (r = .82) as students with low scores improved skills but did not gain on students with higher scores. The correlations between the mathematics scores and grade point average was low at .26.

The major conclusions of the third year report by Russell and Anderson were:

1. The evidence from physics, mathematics, and GIS testing clearly shows learning gains on the part of the preprofessional students. Assuming that such learning matches the preprofessional students immediate, personal goals leads to the conclusion that they are benefiting from the program. We would like, however, to emphasize the adjective "immediate." Students with lower GPA's and low entrance aptitude scores are likely to have difficulty gaining entrance to the health careers in which they are interested.
2. Students with a stated interest in career fields requiring aptitude exams for entrance should take one of the college entrance tests at the earliest possible date. The score on the test should be used as a basis for counseling. The student should have an early estimate of this probability of success. Approximately a third of each years preprofessional class expresses an interest in medicine, meaning pursuit of an M.D., and in many cases there is no realistic hope of success. A disservice is done if we encourage all of the students to think the sky's the limit when in fact such aspirations will only be frustrated. Admittedly, this means attempting the difficult task of helping the student draw the line between the probable and the possible. In short, we can only justify keeping a student in the preprofessional program solely on the current learning gains he will receive if he chooses to stay on that basis; otherwise, there must also be a reasonable chance of favorable long term consequences.
3. Since the preprofessional program in effect introduces a delay of one to two years into the students' schedules, primarily for the purposes of building needed skills, it is too early to tell what the ultimate success of the program will be. We will not know what percentage of former students enter health science careers for another two or three years. Given the data already collected along with the experience thus far, the expectation must be that the percentage will not be greater than 50% and will more likely not be greater than 25%. These estimates are subjective, of course, but our experience leaves us no reason for undue optimism with respect to this figure.

4. Since the study survey, the reading tests and the pretests in mathematics, health vocabulary, and health careers do not predict which students will succeed or stay in the program the tests should be dropped in the future. The testing uses valuable class time and the students tend to get tired of it after awhile. The quantitative data showing low predictability are supported by a survey conducted among students who dropped the program. Nearly every student contacted offered a different reason for leaving the program. Reasons include poor grades, pregnancy, difficulty with science courses, English as a weak second language, health problems, financial problems, political pressure, etc. Such diversity makes counseling and preplanned assistance unmanageable.

   The following conclusions are based on our experience and do not evolve out of our measurement data.

5. If secondary schools concentrated in two areas for student academic excellence, basic skills and exposure to the sciences, we would receive a more competitive minority student for post secondary baccalaureate science programs.

6. We have found little correlation between high school GPA and predictable university performance with minority students, e.g., doing well in high school chemistry doesn't mean the students are ready for college chemistry. Great care must be taken by counselors in helping students set up course sequences. In particular, counselors should have access to mathematics, English, chemistry, physics and other relevant tests scores. These tests are locally prepared and used by University Departments to predict success in basic courses.

7. Students should complete early 100 level mathematics and English course work before being admitted to the preprofessional program. This requirement, which implies focusing on sophomore students, will increase the percentage of students finishing the program.

8. Mandatory immediate tutorial support for mathematics, English and science courses helps to neutralize the negative connotation some students associate with tutors. Once they are used to tutoring, former GIS students habitually seek help with difficult course work early in the quarter.

Some of the foregoing conclusions were hard to draw; after the large effort put into the program, such results are somewhat discouraging. On the other hand, we feel we have a clearer idea of the magnitude of the problem of preparing minority students for health careers. Hopefully, a more tough-minded, and consequently more successful, approach to recruiting minority students can be built on the data collected thus far.

General Interdisciplinary Studies 1977-78

The fourth year of the Preprofessional program was summarized in a report by Russell and Anderson (Note 6), and included: (a) a restatement of the program objectives, (b) a presentation of the data produced during the year, (c) a summary of the previous years of the grant, and (d) a compilation of conclusions and recommendations.

Thirty students in the GIS sequence during the academic year 1977-78 were tested for health career awareness and health vocabulary. Both of these locally produced tests consisted of responding to key words to recall information. Pre-test scores resulted in a mean of 47.8 and a standard deviation of 18.74, while post-test scores resulted in a mean of 80.47, and a standard deviation of 20.19. The fourth year report did not indicate whether the same test was used in both conditions, which certainly would have an impact on the results.

The students also developed journals describing the field experience aspect of the GIS sequence. While the students used medical vocabulary and were enthusiastic about the field experience, many of the journals were poorly written and weakly organized. In addition, available WPCT mean scores for fifteen GIS students were 38.7 for the verbal section and 39.6 for the quantitative section. Comparative figures for entering UW students were 55 for verbal and 56 for quantitative abilities.

Correlations between WPCT scores and university grade point average (GPA) are taken from the report by Russell and Anderson (Note 6) and summarized in the following table.

Table 1

Year	Sample Size	WPCT Mean		WPCT Correlation x GPA	
		Verbal	Quantitative	Verbal	Quantitative
1976-77	23	41.35	43.74	.18	.31
1977-78	15	38.70	39.60	.46	.64

The high school GPA and the university GPA for the fifteen students in the 1977-78 academic year were correlated at .59. Since the sample size of fifteen was extremely small, the results should be cautiously interpreted. Table 2 presents additional GPA information regarding the past performance of GIS students.

Table 2[6]

Cumulative GPA for Present and Former GIS Students

Year	Sample Size	GPA	Standard Deviation
1975-76	46	2.25	.58
1976-77	53	2.44	.63
1977-78	43	2.36	.86

The study by Hodgson and Lutz (Note 7) analyzed the transcripts of all EOP students (2,615) enrolled from 1969 through 1973, and indicated a GPA of 2.2 for these students, indicating little grade difference for GIS students.

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[6]Source: Russell, M., and Anderson, E. Four year summary report of the pre-professional program for minority students in the health sciences. Pre-professional Program for Minority Students in Health Sciences, University of Washington, Seattle, 1978.

The following conclusions and recommendations were developed by Russell and Anderson (Note 6) following the 1977-78 preprofessional program year, and are excerpted here.

"1. The proportion of students withdrawing from the program is high; the withdrawals lead to an ambivalent reponse on the part of the staff-disappointment that so many students leave and pride that 20% to 30% of the students stay in the health sciences when they might not have stayed if there were no program. Clearly the need for minority programs like the preprofessional program continues. And while the program is not 100% successful, it should be borne in mind that attempts to improve student learning are rarely an unqualified success.

2. The university registrar uses high school GPA and college entrance tests as a means of selecting students who will prove successful in his school. The selection procedure does, on the average, work even though some students who are let in fail and some students who were left out would have succeeded. In programs like the preprofessional program, the pool of applicants has already been admitted to school. Further selection via testing is not advisable. A more useful alternative is to let all applicants enter the program and then let self-selection reduce the number of students in the program. Many students shift interests to other fields when given accurate career information, some students drop early for academic reasons, and some students drop for personal reasons. The remaining students will be a better selection for the program than any existing tests could make. If there are too many applicants to permit this approach, then we recommend traditional selection through high school GPA and entrance tests--our attempt to provide other means of selection did not yield an improvement over them.

3. Students seriously interested in medicine, dentistry, and allied health fields should be required to take a scholastic aptitude test early in their schooling. Students making low scores on entrance tests, e.g., the Washington Pre-College Test should be advised that they will probably score low on the MCAT, DAT, and allied health tests as well.

4. Faculty authored pretests should guide student course selections. Without pretests students should begin at the lowest level available to build an adequate body of knowledge and self-confidence. Ideally, academic counselors of health science students would be science majors and perceptive, knowledgeable curriculum planners. Students are all too often encouraged to take courses beyond their present abilities. Closer attention to proper preparatory courses could have prevented many disastrous encounters with difficult mathematics, physics and chemistry courses.

5. In our three quarter GIS classes only students earning credit in GIS 140 and performing at a high level while doing so, should be promoted to GIS 141. Only students earning credit promptly and performing at the desirable level should be promoted from GIS 141 to GIS 142. This would prevent the non-serious student from participating in spring field experience and thus ensure enthusiastic faculty support.

6. In order to reward student performance while at the same time continuously motivating students to achieve, it would be wise to make GIS 141 and 142 graded classes. The autumn quarter should remain on a credit/no credit basis to allow students initial exploration with no penalities for disinterested performance.

7. GIS students should attend mandatory tutorial and study skills sessions when they take an English, science, or mathematics course. Mandatory attendance familiarizes all students with support services and prevents the problem of students coming in too late because of negative feelings about needing help. The attendance requirement is dropped for those students who are successfully handling the course work. We feel this practice has been successful in reaching students needing help, and recommend continuing the practice."

Biology and the Health Sciences

The biology course associated with the Preprofessional Program for EOP students was Biology 103. The course description from the university catalog is presented as follows;

> BIOLOGY 103 Introduction to Biology (5) Autumn, Spring Piternick, Introduction to basic biological concepts within the context of human biology. Primarily for students in the Educational Opportunity Program. No credit allowed if Biology

100 has been taken. Prerequisite: permission.[7]

The report by Russell, Solomon, Anderson and Alaba (Note 3) evaluating the 1974-7[illegible] Preprofessional Program suggested that Biology 103 [illegible] a restructuring to emphasize human anatomy and physiology, reducing the amount of material related to plant biology. The subsequent evaluation report by Russell and Anderson (Note 4) relates the following changes;

> "The course content of Biology 103-C has been modified to specifically emphasize biology related to later medical program courses (e.g., Microbiology 101, 301 and 302; Zoology 118-human anatomy and function; and P.E. 205-body movement). Plant biology is being deemphasized and human biology is being stressed. Pre and post testing will occur on the specific topics being taught. Stored learning may surface as improved student performance in Microbiology 101 and Zoology 118."

The third year report by Russell and Anderson (Note 5) indicated that:

> "The preprofessional section of Biology 103[8] has been modified to emphasize human biology as such knowledge will be more needed in the health sciencesthan animal or plant knowledge. While not as intense as the physics section, Biology 103 has more personal contact, more concern with basic reasoning skills and more direct experimental work than is typical of such courses."

Physics and the Health Sciences

The physics course for EOP students in the Preprofessional Program was the three quarter sequence, Physics 101-02, and 103. The course descriptions from the General Catalog, 1978-80, is presented below:

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[7] General Catalog, 1978-80. University of Washington bulletin. General Series No. 1177, March, 1978.

[8] For a full explanation of the evolution, content and pedagogy of Biology 103 contact Dr. L.K. Piternick, Assistant Professor, Biology Instructional Program Committee, 208G Johnson Annex A or 437 Johnson. University of Washington. Seattle, Washington 98195.

PHYSICS 101-02, 103 Introductory Physics (5-5,5) Autumn, Winter, Spring Basic concepts of physics presented in a laboratory setting. Useful for students whose high school preparation in science is weak and who plan to take standard college science courses. Also provides background needed by teachers for effective use of science curriculum materials in the schools. Prerequisites: 101- for -102; 102 for 103.

The physics course was incorporated as a component of the Preprofessional Program during the academic year, 1976-77. Russell and Anderson (Note 5) reported;

> "The special course sections in biology, physics and mathematics are an attempt to prepare preprofessional students for regular courses in each of the disciplines which are part of normal course sequences leading into the health professions. Physics 101, 102, 103[9] focused on direct experience of physical phenomena gained through the performance of hand-on-experiments and the development of reasoning skills. The latter was accomplished through insistent requests for students to explain their reasoning and defend their answers to questions about physical concepts. Class size was kept small (approximately 30) and coupled with a relatively large staff (4) this led to an intense learning setting. Instruction was individual and students did not move to new concepts until mastery was demonstrated. Given the fundamental nature of these physical concepts (e.g., mass, density, velocity, etc.) the holding of students to high standards of mastery is especially desirable."

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[9]For additional information regarding the Physics sequence, see, Report on Physics 101-103 as Part of the Preprofessional Program for Minority Students in the Health Sciences. McDermott, 1976, and Report of the Second Year of Physics 101B-103B as part of the Preprofessional Program for Minority Students in Health Sciences. McDermott and Rosenquist, 1978. Teaching pedagogy, content, and further information may be obtained by contacting: Dr. Lillian C. McDermott, Associate Professor, Physics. 304B, 302 Physics. University of Washington, Seattle, Washington 98195

Mathematics for EOP Students

The basic skills in mathematics are needed by EOP students, in order to achieve success in the Health Sciences as well as other programs. Moreover, additional skills are needed in advanced levels of mathematics such as algebra, trigonometry, pre-calculus, and calculus. These courses are represented by the mathematics sequence 100, 102, 103, 105 and the 124, 125, 126 calculus series.[10] Most of the Health Science programs (see section titled Health Science Programs) require mathematics 105 (pre-calculus) and additional calculus or quantitative courses as part of the curricula. Therefore, advanced mathematical skills are prerequisites and essential to success, and the Instructional Center has provided essential support for EOP students with the workshops and study groups available for students enrolled in these mathematics courses. Indeed, these workshops[11] have been highly successful by facilitating the entry of additional EOP students into upper-level mathematics courses.[12] Special sections of Mathematics 100, 102 and 103 were developed for EOP students who entered with deficiencies, and many of the students enrolled in the Preprofessional Program from

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[10] Information regarding course prerequisites and content may be obtained from the General Catalog, 1978-80 page a67. University of Washington Bulletin. General Series, No. 1177, March 1978.

[11] For a discussion of the impact of the mathematics study skills workshops upon the academic achievement of EOP students, see Educational Assessment Center, Report No. 79-19, available from: Educational Assessment Center, 453 Schmitz, University of Washington. Seattle, Washington 98195. Project No. 511.

[12] For data regarding the increase in enrollment of EOP students in regular university pre-calculus and calculus courses, see the Instructional Center Annual Report, 1979, P. 8. This report may be obtained by contacting the Office of Minority Affairs, 392 Schmitz, University of Washington. Seattle, Washington 98195.

1974-75 through 1977-78 were enrolled in these special mathematics courses.

Health Science Programs at the University of Washington School of Medicine (Premedical Program)

The coursework required for admissions to the U.W. Medical School (graduate level program) includes the calculus series (Mathematics 124, 125, 126), along with one year each of general and organic chemistry. Also necessary are full year courses in biology, physics and English. Although it is not necessary for the premedical student to major in science, a student with a science background has a considerably better chance of securing admission to medical school provided the grade point average (GPA) is better than 3.2 The mean overall GPA for the class entering the U.W. Medical School in 1977 was 3.64.[13] In addition, the New Medical College Admission Test (NMCAT)[14] must be taken, letters of recommendation from faculty must be procured, work experience in a health-related setting should be a part of the background of the applicant, and the student must submit to an interview that is designed to assess attitude, motivation and verbal expression.

Information submitted to the Educational Opportunity Program by a third year medical student, Ray Garcia, elaborated upon the following points in a memo[15] submitted to the Educational Opportunity Program during the academic year 1977-78.

U. W. Medical School Admissions

1. There is a new MCAT exam with a 1-15 point scoring range. A $3.00 booklet explains the content of the new MCAT.

2. About 1,700 applicants compete for 175 slots at the U.W.

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[13]Source, Educational Opportunity Program Handbook entitled, Medical School Available from the Office of Minority Affairs, 392 Schmitz, U. of W., Seattle, 98195.

[14]New Medical College Admissions Test. For a complete description of the New Medical College Admissions Test, contact: Assoc. of American Medical Colleges, One Dupont Circle, NW, Washington D.C. 20036

[15]Correspondence from Ray Garcia to the Educational Opportunity Program, Office of Minority Affairs, dated November 15, 1977.

3. Initial screening is based upon a minimum GPA of 2.5 and about a minimum score of 7 on the MCAT exam. The MCAT score is flexible depending upon circumstances such as health career experience and degree of educational disadvantage.

4. A second screening is based upon:

   a) experience in health-related fields.
   b) GPA, particularly in science courses.
   c) personal maturity.
   d) humanitarianism and motivation.

5. The third screening process is the interview -- about 400 applicants are selected for personal interviews.

   a) an official volunteer minority committee composed of 4-5 minority faculty and students meet to look over all minority applications. This committee's function is to recommend minorities for interviews.

6. Recommendations -- get to know instructors early so that they might give you a recommendation for medical school.

7. Minority Admissions, 1977--13 Asians, 1 Black and 4 Chicanos.

School of Medicine (Medical Technology Program)

The Medical Technology program is based in the Department of Laboratory Medicine in the School of Medicine at the University of Washington. The program is divided into two phases that include the Preprofessional phase and the Professional phase. The first phase includes pre-calculus (Mathematics 105), four courses in chemistry, three courses in biology, quantitative analysis, and four courses in organic chemistry. A course in college physics is also recommended.

The second phase includes courses in microbiology, general pathology, clinical chemistry, hematology, biochemistry, medical mycology and

parasitology, chemical coagulation, clinical microscopy, medical microbiology, topics in hematology, and clinical immunohematology. Admissions into the professional phase is based upon a minimum grade point average of 2.0, previous preprofessional coursework, personal characteristics such as attitude, motivation and determination to succeed, and performance on the Allied Health Professions Admission Test.[16] An oral interview is not required, but the completed written application must be submitted along with three letters of recommendation. Upon completion of the pre-professional and professional phases, along with the hospital laboratory experiences, the student is eligible to receive a Bachelor of Science degree in medical technology and may take the national examination for certification.

School of Pharmacy Program

The pharmacy program leads to a Bachelor of Science degree and is a five year curriculum requiring an internship and a licensing examination. The first two years encompass a prepharmacy program that includes four courses in chemistry, three in language arts, one pre-calculus course, one calculus course, five organic chemistry courses, three physics courses, and three biology courses. The professional program spans three years and includes courses in pharmaceutical sciences laboratory, pharmaceutical calculations, general and physical science principles, the profession of pharmacy, biochemistry, biophysical medicinal chemistry, anatomy, medical microbiology, pathology, pharmacology, pharmacognosy, pharmacy

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[16] Allied Health Professional Admissions Test. Available from: The Psychological Corporation. 304 East 45th Street. New York, N.Y. 10017

laws, biopharmaceutics and pharmacokinetics, prescription practice, clinical clerkship, clinical pharmacy, toxicology, evaluation of drug products, and contemporary problems and current trends in pharmacy as a health-care profession. After the student completes the two-year preprofessional program in good academic standing, the student may apply for admission to the professional program. In addition, advanced programs in pharmacy are available leading to the Master of Science or the Doctor of Philosophy degree.

School of Dentistry Program

The dental hygienist program is a licensed professional curricula in which the student must first satisfy the Arts and Science proficiency and distribution requirements. These courses include Mathematics 105 or 124, Chemistry 140, 150, 151, 160, 231 and 232, Biology 210, 211, 212, Psychology 101, Sociology 110 and Speech 103. After satisfactory completion of these courses, the student must then apply for the professional phase of the program and admission is based primarily upon grade point average and other measures of academic success. In addition, measures of maturity and motivation are considered along with volunteer or paid work experience related to dentistry. Applicants to the program must take the Dental Hygiene Aptitude Test.[17] This test measures ability in quantitative analysis, science, verbal and reading skills.

Clinical Dietetics Program

The undergraduate program in clinical dietetics leads to a Bachelor of Science degree and the curriculum has a pre-professional and a

[17] Dental Hygiene Aptitude Test. Available from: The Psychological Corporation. 304 East 45th Street, New York, NY 10017

professional phase. The preprofessional phase includes five chemistry courses, Mathematics 105, Nutrition 307 and 314, Microbiology 301 and 302, and Zoology 118, 119. A grade point average of at least 2.5 is necessary for successful admission to the professional phase. The professional program includes courses in nutrition, food and people, clinical diet therapy, experimental foods, child nutrition, seven courses in chemistry, and courses in biochemistry, microbiology, human physiology, statistics, biostatistics, anthropology, economics and psychology.

School of Nursing Program

The nursing program has two phases that include the preprofessional and the professional. Basically, the first year of study is considered preprofessional as the student is required to satisfactorily complete a series of prerequisites that encompass Mathematics 105 or 106, Chemistry 101 and 102, Psychology 101, Anthropology 202 or Sociology 110, English, and several humanities and social science electives. Admissions to the professional phase is determined by an approximate minimum grade point average of 2.5, character references, and attitudinal and motivational factors.

The four departments comprising the professional program in the School of Nursing are: community health-care systems, maternal child nursing, physiologic nursing, and psychosocial nursing. The curricula of study for the professional phase includes courses such as anatomy and physiology, microbiology, nutrition and nursing, pharmacy, nursing process, human development, communication in helping relationships, psychosocial care in adaptive and maladaptive behaviors, statistics, nursing care of adults, care systems analysis, cultural variation

and nursing practice, nursing of children, research in nursing, maternal child nursing, health in the community courses, laboratory experiences electives, and practica.

Prosthetics and Orthotics Program

The coursework prerequisites to this professional program include a minimum cumulative grade point average of 2.5 in courses such as biology, microbiology, chemistry, four courses in physics, human anatomy, zoology, human physiology; education, curriculum and instruction, a mechanical engineering course in welding, and a psychology course. Candidates to the professional phase are assessed along the criteria of academic ability, communication skills, and knowledge of the field. The professional phase curriculum includes courses such as pathologic physiology, orthotics, functions of the locomotor system, anatomy laboratory, psychological aspects of physical disability, prosthetics, medical sciences, immediate post-operation and early fitting, clinical biomechanics and kinesiology, and advanced limb prosthetics and engineering concepts.

Physical Therapy Program

The physical therapy preprofessional prerequisites include such courses as psychology, two courses in chemistry, four physics courses, two microbiology courses, two courses in zoology and an advanced biology course. The Arts and Sciences proficiency and distribution requirements must also be satisfied. Admission to the professional program is based upon a grade point average, additional measures of academic success such as the Allied Health Professions Admissions Test, recommendations,

personal characteristics, and volunteer or paid work experiences in health-related settings. The professional phase begins during the junior year and includes a 12-week summer session at the end of the senior year that involves a full-time clinical experience. The courses required for satisfactory completion of the Physical Therapy Program include such offerings as pathology, advanced physiology, hydrotherapy, tests and measurements, theory of modalities, rehabilitation techniques, neuroanatomy, medical sciences, functional anatomy, motor behavior, soft tissue techniques, kinesiology, orthopeadic problems, ethics and administration, electrotherapy, management of selected therapeutic problems, and prosthetics and orthotic evaluation and use.

Other Programs

In addition to these programs, there exists a plethora of health-related instructional programs available within the various colleges, schools, and departments. These programs include health education, physical education, microbiology and immunology (College of Arts and Sciences), endodontics, oral biology, oral surgery (School of Dentistry), laboratory medicine, occupational therapy, otolaryngology (School of Medicine), environmental health, biostatistics, health services (School of Public Health and Community Medicine), and the social welfare programs in the School of Social Work.

Method

Sample Selection

In order to conduct the study, a sample of Educational Opportunity Program students were selected who had indicated an interest in a health science related career. The criteria for membership in our sample was defined as those students who had enrolled in both GIS 140 and Biology 103 concurrently at some time during the academic years 1975-76, 1976-77 and 1977-78. As described earlier, GIS 140 is a general interdisciplinary study course developed to provide an introduction and orientation to the Health Sciences, and Biology 103 was designed to provide an introduction to Biology for students interested in Health Sciences. Both courses were developed specifically for minority and disadvantaged students.

Using this criteria, 94 students were selected for further study. Of these 94 students, 4 had entered the University before 1975, 29 entered during 1975, 38 entered in 1976, and 23 entered during 1977. At the end of spring quarter 1979, 46 of the 94 (49%) students were still enrolled in the University and 48 (51%) had withdrawn from the University (prior to graduation).

Data Collection

Data collection activity on these 94 students was conducted in essentially two manners. First, student data was accumulated from transcripts. This included mainly the courses the students had taken, along with their grades, and the number of times they had repeated given courses. Also taken from transcripts were cumulative grade point averages and the quarter in which the student took the given class. In addition to this information, supplementary data were taken from the files of the Office of Minority Affairs, such as college entrance examination scores, if available.

For course data, 57 courses were isolated as being commonly taken by Health Science students and as being part of the required curriculum for any particular Health Science program. Two of these courses were not completed by any of the students in the sample (Physics 119 and Biology 213) leaving a total of 55 courses on which data existed.

The second manner in which data were collected was through telephone interviews of students in the sample. An attempt was made to contact all 94 students, but 63 of the 94 students were actually contacted, representing 67% of the total sample. As might be expected the contact rate for students still enrolled in the University was much higher than students not enrolled. Thirty-nine of the 46 enrolled students were contacted (85%) while 24 of the remaining 48 students no longer enrolled were contacted (50%). The form used by the telephone interviewers is presented in Appendix A of this report. Questions centered on reasons for choosing Health Sciences as a career and factors that influenced that decision, amount of volunteer work done within Health Sciences, relative usefulness of high school courses, relative difficulty of Health Sciences courses, and for those people not continuing, reasons for leaving the University.

Results

The results of this study will be presented in two parts. In part one the results of transcripts and Office of Minority Affairs records data will be presented and discussed. In part two of the results section, results of the telephone interviews will be presented and discussed. However, before presenting these analyses, some comments are in order. In conducting this study we have collected a great deal of information about

94 students. In writing this report it is clear to us that complete analyses of all these data are not possible. One reason is time and financial constraints. Another reason is that different questions will emerge as different decision-makers look at the available data, and it is not possible for us to anticipate all these questions. Therefore, we have created a computerized data file containing all these data using the Statistical Package for the Social Sciences (SPSS) and a data file structure. Included in these files are complete variable labels. Documentation for these files may be obtained from the Educational Assessment Center so that appropriate persons who wish to access the data for further analyses may do so.

Course Information

As mentioned previously, 55 distinct courses were listed as those which are required of many Health Science curricula. All these courses are listed in Table 1. Along with the listing of the course is the following information:

The course title.

The number of students who enrolled for the course.

The number of students who withdrew from the course without having received a grade.

The modal quarter in which the course was taken, that is, the quarter in the students' schedule in which the largest number of students took the course.

The number of students who received the grade of credit (CR) for the course.

The median grade for the course for those students who received numerical grades and, in parentheses, the number of students who received letter grades.

The number of students who either failed the course, receiving a 0.0 grade, or who received the grade of no credit for the course.

The number of students who repeated each course at least once.

The number of students who received an incomplete grade for the course.

When students repeat courses at the University of Washington, the grade for each time the course was taken is recorded in the transcripts. The way we handled this difficulty was to hold only the final grade that the student had received. In addition, the number of times a student repeated a course was recorded. Thus, for a student who repeated a course three times the grade received the third time the course was taken appears in the table, but also appearing in the table is the fact that the student had repeated the course.

One may view Table 1 from at least two perspectives. First, Table 1 gives some indication of the frequency with which courses are taken by Health Sciencesminority students. However, in looking at the table in this regard it should be kept in mind that our sample includes those who started at the University as recently as 1977; therefore, the more advanced courses indicate less student enrollment than would be the case if all students had been enrolled for a longer period of time. Secondly, these data may be viewed as indicators of where problems may lie; that is, courses in which future EOP students may need special help in getting through.

Table 1 about here

In viewing Table 1, it appears that within the Math courses, Math 100 is a somewhat troublesome class. Of the 53 students within our sample who

originally enrolled in the course, six withdrew prior to receiving a grade and four failed the course. Five of the original 53 who enrolled repeated the course at least once, presumably in order to get a higher grade. Math 105 appears to be a somewhat difficult course as well. In this course, 12 of the 48 originally enrolled withdrew, a full 25%. In addition, seven students failed this course and fourteen repeated the course. In fact, Math 105, Elementary Functions, appears to be one of the most difficult classes for the students represented in the sample. Math 106, Finite Mathematics, had considerably fewer students enrolled, with a total of ten. Of the ten, seven received grades with a grade point average of only 1.5. One student failed the course and two students needed to repeat it. Thus, Math 106 also appears to be a difficult course. In the subsequent Calculus sequence, Math 124, 125, and 126, nine students enrolled for 124, seven for 125 and only three for 126. This indicates some problem with completing the entire calculus sequence for these students.

Analyzing the data from Chemistry courses, it appears in general that Chemistry was difficult for many of the students within our sample. Chemistry 101 is fairly typical as twenty-nine students enrolled but eight withdrew without receiving a grade. The grades for the remaining twenty-one students averaged 2.0 or exactly a "C". No students failed the course, but six repeated it at least once.

Physics 101, 102 and 103 are a sequence of courses developed for EOP students. In viewing the data from these courses, it appears that these courses were fairly popular with our sample as approximately half of the students were enrolled in Physics 101. Performance in these classes was relatively good. One negative factor was that only 23 students enrolled for the third course in the sequence, Physics 103, and only twenty completed

the course. Other Physics courses appear more difficult for the students in the sample. The few students who took 210 and 211, Intermediate Physics for Teachers and Students in Liberal Arts, did fairly well in these courses.

Biology 103 enrollment was one of the criteria for inclusion in our sample. However, of the 94 students enrolled, twelve withdrew, seventy-four students received credit for the course (79%) and eight students received no credit. One possible trouble area with Biology 103 was that fourteen sutdents received incomplete grades, thus indicating that the course takes many students longer than one quarter to complete.

For Microbiology 310 seven of the original twenty-two students enrolled dropped out (32%) and the median grade for the remaining fifteen students was 1.9, with four students repeating the course. One student failed the course.

Of the 94 students who enrolled in GIS 140, only eighty-five (85%) received credit for the course, with seven receiving no credit and seven withdrawing. The number of students achieving credit dropped to sixty-seven for GIS 141, and to fifty-five for GIS 142.

Another somewhat difficult course for students within the sample was Sociology 110, Survey of Sociology. Seven of the thirty-three enrollees withdrew from the course, three failed, and six had to repeat the course. Other interesting data may be found in table 1, and readers are invited to examine these data according to their own special interest.

Comparisons of enrolled vs. non-enrolled students

As mentioned earlier, 46 students out of our sample of 94 continued to be enrolled at the University of Washington in spring of 1979, while 48 students were no longer enrolled. There are various reasons why students were no longer enrolled at the University and the telephone survey data

subsequently speaks to these reasons. In addition, the fact that students are presently enrolled does not necessarily indicate they will graduate with their Health Science degree and take up a career in that area. Conversely, students who are no longer enrolled may well have obtained some access to the Health Science career of interest without graduating, or may be currently enrolled at another college. In spite of these concerns and because some criteria needed to be established, we defined students who are presently enrolled as being successful, and those who are no longer enrolled as being relatively less successful for comparative purposes. In Table 2 the number of students who were enrolled and not enrolled is broken down by ethnic division of the EOP program and by year of entry. If one looks at the right hand columns of this table where the total numbers are

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Table 2 about here

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presented, indications are that Asian students have been the most successful participants in the program. Of the eighteen Asians who are a part of our sample, twelve remain in college. The least successful groups are American Indians, who have two of six remaining in the program, and the economically disadvantaged (white students) who have three of ten remaining in the program. Both Black and Chicano groups are intermediate in their success rates. Analyzing the data on a yearly basis, it is evident that slightly more than half of the 1975 entrants are no longer enrolled and a slightly larger percentage of the 1976 entrants are no longer enrolled. 1977 entrants are enrolled at about a 65% rate; however, the higher rate of success for 1977 entrants may be an artifact of the later date at which these students entered. It could be that students entering in 1977 have yet to encounter many problems leading to withdrawal.

In Table 3 we have the cumulative quarters completed by students both enrolled and not enrolled broken down by the years of entry. It is of

Table 3 about here

special interest to note the quarters completed for people who have left the University. The most common quarter to be the last one of enrollment is the third quarter in the students' schedule. Usually, the third quarter would be at the end of spring quarter of their first year. Thus, of the 48 people who have dropped out within our sample, 10 of these, or 21%, dropped out essentially at the end of their first year. Seven dropped out at the end of the 4th quarter of their program, and nine dropped out in the sixth quarter of their program or probably at the end of the second year. However, as can be seen in the Table 3 at least one enrollee dropped out during each quarter from the first to the tenth; thus these data do not suggest a particularly troublesome quarter in terms of dropout rate.

In Table 4 the cumulative grade point average of the students is broken down by year of entry and by enrolled versus not-enrolled status.

Table 4 about here

For those students not enrolled, the cumulative grade point average recorded is the one they had when they left the University. For those people enrolled it is the one they had at the end of spring quarter, 1979. As can be seen in this table, students who were no longer enrolled have a lower grade point average than those students who are enrolled. Eleven of the 48 drop-outs had a grade point average of 1.0 or less and an additional 14 had a

grade point average of less than 2.0. This is in marked contrast with the enrolled students where only five students have a grade point average of 2.0 or less. However, it is also clear that all students did not drop out because of a low grade point average.

In Table 5 the students are categorized into four groups with the cumulative grade point average below and above 2.0, crossed with enrolled versus non-enrolled status. As can be seen from this table, 23 students, or almost half, of the not enrolled students dropped out with a grade

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Table 5 about here

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point average greater than 2.00. Thus, these students did not drop out strictly for academic reasons: That is, they were not forced to leave because of a low grade point average alone.

In Table 6, a t test is presented which compares the grade point average of those enrolled with those not enrolled. As can be seen from this table, the mean grade point average of the enrolled students is a full

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Table 6 about here

.6 higher than the mean grade point average of those not enrolled and the t value comparing these two means is statistically significant.

Additional t tests were run on variables which might be predictive of those students who continue to be enrolled as compared to those students no longer enrolled. The first of these variables was high school grade point average (GPA) and these results are found in Table 7. As can be seen from this table, the high school GPA of those students still enrolled was 2.76

while for those students not enrolled the high school GPA was 2.41. The

Table 7 about here

difference between these two values is statistically significant. Thus, high school GPA appears to be a significant predictor of enrollment status.

The sample contained eighteen students who had transferred from another institution of higher education into the University of Washington. Of these, ten were enrolled and eight were not enrolled. A t test comparing the transfer GPAs of the two groups was non-significant (Table 8), although it was higher for the enrolled students (2.39) than for the not-enrolled students (2.04). Looking at the number of credits transferred in Table 9, the two groups were essentially equivalent on this variable.

Table 8 and Table 9 about here

Thirty-two of the students had taken an entrance examination. In Table 10, the mathematics test results are found, and in Table 11 the verbal results are presented. In neither case was the difference between

Table 10 and Table 11 about here

the scores of the two groups statistically significant. However, what is significant is that these test scores were normed on a college-bound group such that the mean was 50 and the standard deviation was 10. As can be seen from these data, all results are approximately equal to 40, which implies one full standard deviation below the average for the high school senior who was college-bound. Hence, the average score of the students

taking tests within our sample was less than average, but test score results were not predictive of whether the students would be enrolled or not enenrolled when our data were collected. These results are consistent with those reported in the GIS 140, 141, and 142 evaluations presented earlier.

Telephone Interview Results

As mentioned previously, 63 students from our sample of 94 were contacted by telephone for an individual interview session. Of these, 22 are in the not-enrolled group and 41 are in the enrolled group. Thus, because students in the enrolled group were residents of the University of Washington they were easier to contact than those students who were not enrolled. A series of questions was asked of these students, following the structured interview form included as Appendix A. All questions were content-analyzed and responses were placed into categories. In Table 12, the ethnic composition of the interviewed sample is presented in comparison to the total sample. Chicanos and American Indians were somewhat under-represented, while Asians were over-represented. Tables 13 through 45 contain the results of the interviews. In all but a few exceptions these tables are broken down by enrolled versus not-enrolled status.

Table 12 about here

In Table 13 the Health Science majors of the students are listed. This is the only place within our data file in which we have recorded the major. As can be seen from these data, the majority of the students were in pre-medicine or nursing. Little difference in major could be seen between those students who were enrolled and those students who were not-enrolled.

Table 13 about here

In Table 14, the persons most influential in the Health Science career decision of the students are listed. Seventeen students mentioned themselves or no one who was particularly influential. Thirteen mentioned the GIS instructor, Ms. Millie Russell, and ten students felt parents were particularly influential. In comparing students who were enrolled with students who were not enrolled, of interest is that a relatively higher proportion of those students enrolled indicated that their parents were most influential in their choice and a relatively lower proportion indicated that their high school teacher was most influential. For the latter, three people who were not enrolled indicated that their high school teacher was most influential, which constituted 14 percent of that group, as compared to only one person who is currently enrolled, which constituted only two percent of that group.

Table 14 about here

Students were asked their reasons for choosing a Health Science major. (see Table 15). The most common reason was helping others, which was indicated by 29 percent of the sample. Interestingly, 17 percent indicated that they made the choice because they felt it would be an easier major than other fields of study. In comparing the enrolled students with the not-enrolled students, there is a large difference in the proportion giving this response. Of the 11 students who made their choice of a major in Health Sciences because they felt it would be easier, ten remain enrolled and one has dropped out. On the other hand, of those 15 people who chose a Health Science major because it would be interesting, eight have dropped

out and seven have remained enrolled. It is not clear why this difference exists. Perhaps those students who felt a Health Science major would be easier tended to be those better prepared for the rigors of the Health Science curriculum. Also, it could be that choosing the major because of interest alone is not a very sustaining reason.

Table 15 about here

When did students decide to go into Health Science careers? The sample is about evenly split between the junior and senior year in high school, the first year of college, and the second year of college, as indicated in Table 16. It appears that those students who chose while in high school have a slightly higher proportion who remain enrolled than those students who chose in their first year of college.

Table 16 about here

Who is the most infleuntial information source in the Health Science career choice? Eight different classes of responses were given to this question (see Table 17). Most common was the GIS preprofessional program. Others included EOP counselors, UW faculty member, volunteer work experience, reading materials, discussion with professionals in the field, high school resources, personal knowledge or self interest, and family.

Table 17 about here

In Table 18 information is given concerning whether students had changed majors and how often. Most of the students at the time of the survey had not changed majors. Four had changed their major in the first year, and thirteen had changed majors in their second year. However, most Health

Science programs have a 2-year preprofessional phase prior to taking more specialized courses, and this could impact upon changing majors particularly in the third year.

Table 18 about here

Tables 19, 20 and 21 present information on the students' participation in volunteer work in Health Science fields. The majority of the respondents had done some volunteer work. Twenty-seven students or forty-three percent, did not participate in volunteer work, twenty-four percent had participated during the junior or senior year in high school, fourteen percent during their freshman year at UW, ten percent during their sophomore year and ten percent during their third or fouth year. The type of organization in which volunteer work was done is found in Table 20. The main type of organization indicated is the hospital. Also represented are Community Clinics, nursing homes, dental, eye, or foot offices, and mental health hospitals or offices. Finally, Table 21 gives information about the length of time of volunteer service. Half of the respondents who had participated in volunteer work did it for at least two months, but less than four months. Reflecting upon Table 19, it can be seen that fifty-nine percent of the students who were no longer enrolled had not done volunteer work, while only thirty-four percent of those students still enrolled had not done volunteer work. Thus it appears that volunteer work may be related to continued enrollment in Health Sciences. On the other hand, the difference may be attributable to the fact that students who have remained enrolled have had more time to do volunteer work as a part of their curriculum. The data bear this out to some extent as both groups appeared to do about the same amount of volunteer work within high school. The students who have remained enrolled

began to get their edge during college; during the first year nine percent of the not enrolled students did volunteer work while seventeen percent of those enrolled were volunteer workers. During the second year the percentages are roughly equal but during the third year at the UW fifteen percent of the enrolled students had done volunteer work, while none of the not enrolled students had done volunteer work. Confounding this were fewer students in the not enrolled group during the third year.

Tables 19, 20, 21 about here

Table 22 contains data on what students found to be their most useful math class in high school. Over half of the students felt that algebra

Table 22 about here

was the most useful class. In Table 23 the most useful science class is indicated. Biology received the majority of the votes with chemistry being indicated by about one quarter of the respondents. All other science classes received a combined total of less than 20%. It is interesting to note in Table 23 that all students who are no longer in the program indicated that biology or chemistry were most useful, while a few students who are presently enrolled found anatomy and physics as the most useful science courses.

Table 23 about here

Table 24 presents the most difficult Health Science courses, and chemistry, physics and microbiology were the top vote getters in that regard. The data in Table 25 indicated why the students found the particular Health

Science course difficult. Nineteen percent of the students felt it was because they had improper academic backgrounds for the course, and twelve percent of the students felt it was because there was no individual help or that the class was too large. Nineteen percent blamed the difficulty of the course on poor teachers or the organization and presentation of course material. Seven percent felt that personal problems such as lack of time, self-motivation or self-discipline caused the difficulty in the course. Twenty-six percent of the students felt there was too much course work or too much expected of them, and three of the students felt it was the instructor's accent that made the course difficult. Interestingly, for students no longer enrolled, there was a disproportionate number who felt that the course was difficult because there was no individual help and the class was too large, and because of personal problems and obstacles. On the other hand, those students who continue to be enrolled often indicated poor instruction or lack of background as the main reasons for difficulty in the course.

Table 24 and Table 25 about here

Table 26 indicates which Health Science course the students found to be the easiest. Thirty-four percent felt the GIS preprofession preparation course was the easiest, while seventeen percent chose microbiology, and fifteen percent felt biology was the easiest course. In Table 27 it is indicated why students felt these courses were particularly easy. The majority (51%) felt the course was easy because clear and understandable explanations were given regarding course material and that the concepts were probably less difficult than other courses.

Table 26 and Table 27 about here

How did interviewed students rate the teachers in Health Sciences? The answer is found in Table 28 and the rating is generally good. Sixty-seven percent of both the enrolled and not-enrolled students felt that Health Sciences instructors were good, a slightly higher percentage of the remaining students not enrolled felt teachers were excellent, and a slightly higher percentage of those enrolled felt that the teachers were fair. In Table 29 the reasons for these ratings are given. The major ones were the fact that the teachers knew the material, cared about students and were accessible. The major reason for less than excellent instruction was that the instructors did not have time for individual students. It is of interest that not enrolled students stressed the fact that the instructors were caring and accessible as a more important reason, while enrolled students stressed that knowing the material was a more important positive reason for high teacher ratings.

Table 28 and Table 29 about here

Did the females within the sample feel that they had been discriminated against because of their sex? Of the 46 females interviewed, 39 felt they had not been discriminated against because of their sex, six felt they had encountered subtle discrimination and one student felt she had been discriminated against by a male instructor outside of class (see Table 30). In Table 31, data on perceived racial discrimination are found. For the entire sample, 77 percent felt that there had not been racial discrimination, eight felt there was discrimination by other students, and one had a general feeling that he or she had been discriminated against. No major difference between the enrolled and not-enrolled students existed on this variable.

In Table 32 information is given on the number of Health Sciences

courses the students reported they had taken per quarter. The majority had taken two courses with somewhat fewer having taken either one or three per quarter. Table 33 presents self-reported hours of study per Health Science course. These data are on a weekly basis and the estimate ranged from one hour to fifty-six hours. The average number of study hours for those students still enrolled was 12.4 hours per course per week, and for those students not enrolled the average was 7.1 hours. However, these data must be cautiously interpreted because they are self-reported and are dependent upon the individual accuracy of timekeeping.

Table 32 and Table 33 about here

To what extent were students involved with other activities while going to school? Table 34 indicates that most students were working for pay, involved in volunteer work, doing household chores, and in some instances involved in two or more activities. Overall, 90 percent of the students interviewed had indicated other activities along with educational pursuits. Interestingly, a majority of 47% reported they had been involved in two or more activities. No significant differences existed between the enrolled and the not-enrolled groups on this variable.

Table 34 about here

Table 35 indicated the number of hours per week that students were working for pay, and this number ranged from five to forty-three hours. Students who are currently enrolled averaged 18 hours per week while those not enrolled averaged 22.1 hours per week. This difference, though it is small, may account for part of the reason why some students are no longer enrolled. Table 36 indicates the hours of volunteer work per week; the number of students responding to this question was relatively small. The

number of hours ranged from two hours to forty hours per week. Table 37 indicates the self-reporting household work hours per week. These hours ranged from two to twenty-eight with little difference between the enrolled and the not-enrolled group. In Table 38, work-related data are presented indicating the type of work that students were involved in, especially in regard to a Health Science career. Of those students responding to this question, 20 students indicated jobs related to Health Sciences, while 34 students indicated non-Health Science related jobs and eight students did not have jobs.

Tables 35, 36, 37, and 38 about here

In Table 39, data are presented regarding student perceptions concerning who had made their Health Science career choice. Seventy-six percent of the students indicated they had mde the choice themselves, eighteen percent gave credit or discredit to the UW or EOP advisor, five percent indicated a parent and one percent gave credit to some other source.

Table 39 about here

Table 40 presents the marital status of the students within the sample. Seventy-seven percent of the students were single when the interview was conducted. Six percent were planning marriage, eight percent were married, six percent divorced, and one person (2%) was separated. Eight-four percent of the students did not have any dependents (see Table 41). In Table 42 the occupation of the spouse is given and in these applicable instances, four students had spouses hwo were working professionally, while two were students and one an unskilled laborer.

Tables 40, 41, and 42 about here

The data found in Table 43 indicating student plans for the next two to three years are of particular interest. As indicated, thirty-four (76%) of those students enrolled indicated that they planned to complete Health Science

studies. Nine enrolled students, (22%), indicated that they were currently enrolled in non-Health Science related fields. This is particularly important because in the transcript data presented earlier, there was no way of knowing if the student continued to have an interest and persisted in a Health Science career. Conversely, it is interesting to see that nine students (44%) of those no longer enrolled, plan to continue Health Science studies at another college. Apparently, not all of the students that dropped out of the University of Washington give up on a Health Science career, since almost half of these students planned to pursue a Health Science career at another institution.

Table 43 about here

In Table 44, the present occupations of those students no longer enrolled at the University of Washington are indicated. Five continue as students enrolled in other colleges, and one person is working in a Health Science related field.

Table 44 about here

What reasons did these students give for not continuing at the University of Washington? Nine students (44%) indicated that financial reasons caused them to drop out of school. Four students indicated personal reasons such as getting married, or becoming pregnant. Six students (29%) indicated that they were just tired of school, lacked motivation, or disliked the University, while two students indicated other reasons. These data are particularly interesting because no students cited academic problems and low grade point average (below 2.0) as their reason for leaving the University. Therefore, while it is clear that students leave the University for complex and various reasons, the students appear to be underestimating the effects of academic difficulties on their continued enrollment and pursuit of career interests.

Table 1
Courses Within Health Science Curricula
Enrollment and Grade Data

Course	Title	Number Enrolled	Number Withdrawn	Modal Quarter Taken	Number Receiving Credit	Median Grade (N)	Number Failing / No Credit	Number Repeating Course	Number Receiving Incomplete Grade
Mathematics 100	Alegbra	53	6	1	0	3.0 (47)	4	5	2
Mathematics 102	Algebra	51	5	2	0	3.1 (46)	0	1	0
Mathematics 103	Introduction to Elementary Functions	49	9	3	0	3.0 (40)	2	1	2
Mathematics 105	Elementary Functions	48	12	5	15	2.5 (36)	7	14	2
Mathematics 106	Finite Math	10	3	4	1	1.5 (6)	1	2	0
Mathematics 124	Calculus	9	2	5	0	2.7 (7)	0	3	0
Mathematics 125	Calculus	7	1	6	0	1.9 (6)	0	3	0
Mathematics 126	Calculus	3	1	6, 8	0	2.2 (2)	0	1	0

Course	Title	Number Enrolled	Number Withdrawn	Modal Quarter Taken	Number Receiving Credit	Median Grade (N)	Number Failing / No Credit	Number Repeating Course	Number Receiving Incomplete Grade
Matnematics 157	Calculus for Business and Social Science Majors	3	1	6, 8	0	2.2 (2)	0	1	0
Chemistry 101	General Chemistry	29	8	4, 5, 6	0	2.0 (21)	0	6 (5)	0
Chemistry 102	General and Organic	11	3	6	0	2.0 (8)	1	2	
Chemistry 105	Introduction to General Chem.	6	2	4	0	2.5 (4)	0	0	0
Chemistry 106		1	1		0	—		0	0
Chemistry 140	General Chem.	11	2	7	0	2.0 (9)	2	4	1
Chemistry 150	General Chem.	4	1	4, 6, 8	0	2.4 (3)	0	4	0
Chemistry 151	General Chem. Lab	5	1	3,4,7,9	0	2.3 (4)	0	0	0

Course	Title	Number Enrolled	Number Withdrawn	Modal Quarter Taken	Number Receiving Credit	Median Grade (N)	Number Failing / No Credit	Number Repeating Course	Number Receiving Incomplete Grade
Chemistry 160	General Chem.	3	0	9	0	1.8 (3)	1	2	2
Chemistry 231	Organic Chem.	2	0	8, 11	0	2.5 (2)	0	0	0
Chemistry 232	Organic	1	0	12	0	2.4 (1)	0	0	0
Chemistry 235	Organic	1	0	9	0	2.2 (1)	0	0	0
Chemistry 236	Organic	1	1	10	0	2.0 (1)	0	0	0
Chemistry 242	Organic Chem. Lab	1	0	10	0	2.6 (1)	0	0	0
Chemistry 321	Quantitative Analysis	1	0	9	0	2.6 (1)	0	0	0
Physics 101	Introductory Physics	40	3	1	0	(contd.)	0	1	0

Course	Title	Number Enrolled	Number Withdrawn	Modal Quarter Taken	Number Receiving Credit	Median Grade (N)	Number Failing / No Credit	Number Repeating Course	Number Receiving Incomplete Grade
Physics 102	Introductory Physics	38	5	2	0	2.5 (31)	3	1	1
Physics 103	Introductory Physics	23	3	3	0	2.8 (20)	0	1	0
Physics 114	General Physics	10	3	7	0	2.0 (7)	1	3	0
Physics 115	General Physics	4	0	8	0	1.0, 2.2 (4)	1	0	0
Physics 116	General Physics	3	1	7, 13	0	1.4, 2.2 (2)	0	2	0
Physics 117	General Physics Lab	6	0	4	6	—	0	0	0
Physics 118	General Physics Lab	4	0	8	4	—	0	0	0
Physics 119	General Physics Lab	0	0					0	0

Course	Title	Number Enrolled	Number Withdrawn	Modal Quarter Taken	Number Receiving Credit	Median Grade (N)	Number Failing / No Credit	Number Repeating Course	Number Receiving Incomplete Grade
Physics 210	Intermediate Physics for teachers	4	0	4	0	2.8 (4)	0	0	0
Physics 211	and students in liberal arts	2	0	5, 9	0	2.8 (2)	0	0	0
Biology 103	Introduction to Biology	94	12	1	74	—	8	0	14
Biology 210	" "	2	0	5, 8	0	1.3, 3.5 (2)	0	0	0
Biology 211	"	3	0	6, 8, 9	0	1.9 (3)	1	0	0
Biology 212	" "	2	0	10, 12	0	1.8, 2.4 (2)	0	1	0
Zoology 118	Survey of Physiology	31	3	3	0	2.3 (28)	4	2	0
Microbiology 101	Microbial World	60	3	2	0	2.0 (57)	1	5	1

Course	Title	Number Enrolled	Number Withdrawn	Modal Quarter Taken	Number Receiving Credit	Median Grade (N)	Number Failing / No Credit	Number Repeating Course	Number Receiving Incomplete Grade
Microbiology 301	General Microbiology	22	7	4, 6, 7	0	1.9 (15)	1	4	0
Microbiology 302	General Micro Lab	18	4	4, 6	0	2.8 (14)	0	3	0
Microbiology 351	Intro. to Medical Micro	1	0	6	0	1.7 (1)	0	0	0
General Interdisciplinary Studies 140		94	7	1	80	—	7	0	15
General Interdisciplinary Studies 141		83	5	2	67	—	11	1	21
General Interdisciplinary Studies 142		72	4	3	55	—	14	1	17
Sociology 110	Survey of Sociology	33	7	4	2	2.0 (24)	3	6	0
Psychology 101	Psychology as a Social Science	36	7	4	1	2.4 (28)	1	2	1

Course	Title	Number Enrolled	Number Withdrawn	Modal Quarter Taken	Number Receiving Credit	Median Grade (N)	Number Failing / No Credit	Number Repeating Course	Number Receiving Incomplete Grade
Speech 103	Principles of Oral Commun.	16	5	2, 3	1	2.0 (10)	0	1	0
Physical Education 205	Basic Biomechanics for Nursing	18	1	5	14	___	3	0	0
Classics 205	Bioscientific Vocabulary Building from Latin & Greek	19	3	6	14	___	2	2	1
Education 250		9	0	3	0	3.4 (9)	10	0	0
Conjoint 317	Intro Anatomy & Physiology	6	0	none	0	2.1 (6)	1	0	0
Conjoint 318	" "	5	1	none	0	2.2 (4)	0	0	0
Nutrition 319	Nutrition and Nursing	4	0	7	0	1.0, 2.3 (4)	0	0	0
Pharmacy 315	Introduction to Pharmacotherapeutics	5	0	7	0	1.8 (5)	0	0	0

Table 2

Number of Students Within EOP Division, By Year of Entry and Enrollment Status

	Year of Entry														
	1974			1975			1976			1977			Total		
Division	Enrolled	Not Enrolled[1]	Total	Enrolled	Not Enrolled[1]	Total	Enrolled	Not Enrolled[1]	Total	Enrolled	Not Enrolled[1]	Total	Enrolled	Not Enrolled[1]	Total
American Indian	1	0	1	0	1	1	0	1	1	1	2	3	2	4	6
Asian	0	0	0	6	4	11	4	0	4	2	0	2	12	6	18
Black	1	2	3	3	5	8	7	10	17	8	5	13	21	21	42
Chicano	0	0	0	2	3	5	4	5	8	2	1	3	8	10	18
Economically Disadvantaged	0	0	0	1	3	4	0	4	4	2	0	2	3	7	10
Total	2	2	4	12	16	29	15	20	34	15	8	23	46	48	94

[1] These students were no longer enrolled at the end of the 1979 academic year.

Table 3

Cumulative Quarters Completed by Year of Entry and Enrollment Status

Year of Entry		Cumulative Quarters Completed														
		1	2	3	4	5	6	7	8	9	10	11	12	13	>14	Total
1974	Enrolled														2	2
	Not Enrolled							1		1						2
1975	Enrolled						1		1	2		1	4	4		13
	Not Enrolled	1	1	4	3	1	1	2	1	1	1					16
1976	Enrolled					1	1	8	3		3					16
	Not Enrolled	2	1	4	4	2	7	2								22
1977	Enrolled			1	8	5	1									15
	Not Enrolled	2	4	2												8
Total	Enrolled			1	8	6	3	8	4	2	3	1	4	4	2	46
	Not Enrolled	5	6	10	7	3	9	4	1	2	1	0	0	0	0	48

Table 4

Cumulative Grade Point Average by Year of Entry and Enrollment Status

		0.00 - 1.00	1.01 - 1.50	1.51 - 2.00	2.01 - 2.50	2.51 - 3.00	3.01 - 3.50	3.51 - 4.00
1974	Enrolled			0	1	1		
	Not Enrolled			1	1	0		
1975	Enrolled	0	0	0	8	4		
	Not Enrolled	2	0	5	5	3	1	
1976	Enrolled	0	0	1	3	10	1	0
	Not Enrolled	4	2	4	7	2	1	2
1977	Enrolled	0	0	4	2	3	5	1
	Not Enrolled	5	2	0	0	1	0	0
Total	Enrolled	0	0	5	14	18	7	1
	Not Enrolled	11	4	10	13	6	2	2

Table 5

Cumulative Grade Point Average by Enrollment Status

Cumulative Grade Point Average

	≤2.00	>2.00	
Enrolled	5	41	46
Not Enrolled	25	23	48
Total	30	64	94

Table 6

t-Test on Grade Point Average

	N	Mean	Standard Deviation	t value	Probability
Enrolled	46	2.64	.51	4.19	.001
Not Enrolled	48	2.04	.80		

Table 7

t Test on High School Grade Point Average

	N	$\bar{x}$	Standard Deviation	t value	Probability
Enrolled	46	2.76	.77	2.29	.025
Not Enrolled	48	2.41	.69		

Table 8

t Test on Transfer Grade Point Average

	N	$\bar{x}$	Standard Deviation	t value	Probability
Enrolled	10	2.39	.43	1.01	N.S.
Not Enrolled	8	2.04	.90		

Table 9

t Test on Transfer Credits

	N	$\bar{X}$	Standard Deviation	t value	Probability
Enrolled	10	44.9	15.9	-.11	N.S.
Not Enrolled	8	46.0	25.0		

Table 10

t Test on Entrance Exam Math Results

	N	$\bar{X}$	Standard Deviation	t value	Probability
Enrolled	20	40.5	7.3		
Not Enrolled	12	37.9	8.4	.88	N.S.

Table 11

t Test on Entrance Exam Verbal Results

	N	$\bar{X}$	Standard Deviation	t value	Probability
Enrolled	20	39.3	7.3		
Not Enrolled	12	38.4	7.8	.30	N.S.

Table 12

Ethnic Constituency of the Interview Sample

Ethnic Division	Total Sample	Interview Sample	Percentage of Total Sample
American Indian	6	3	50%
Asian	18	15	83%
Black	42	29	69%
Chicano	18	8	44%
Economically Disadvantaged	10	7	70%
Total	94	62	

Table 13

Health Science Majors

	Not Enrolled N (%)	Enrolled N (%)	Total N (%)
Pre-(Health Science) Major	3 (14)	4 (10)	7 (11)
Pre-Medical	5 (23)	10 (24)	15 (24)
Nursing	4 (18)	11 (27)	15 (24)
Other Health Science Major	7 (32)	8 (20)	15 (24)
Dentistry	3 (14)	3 (7)	6 (10)
Other	0 (0)	5 (12)	5 (8)
Total	22	41	63

Table 14

Most Influential Person in Choosing a Health Science Career

	Not Enrolled N (%)	Enrolled N (%)	Total N (%)
Respondent	6 (27)	11 (27)	17 (27)
EOP/UW counselor or advisor	2 (9)	3 (7)	5 (8)
UW faculty, other than GIS	2 (9)	3 (7)	5 (8)
Parents	2 (9)	8 (20)	10 (16)
Relatives, friends; employees	3 (14)	6 (15)	9 (14)
High school teacher/counselor	3 (14)	1 (2)	4 (6)
GIS instructor (M. Russell)	4 (18)	9 (22)	13 (21)
Total	22	41	63

Table 15

Various Reasons for Choice of Major

	Not Enrolled	Enrolled	Total
	N (%)	N (%)	N (%)
Wanted to work with, or help others	5 (23)	13 (32)	18 (29)
Good job opportunities or money	4 (18)	5 (12)	9 (14)
General interest in medicine or science	8 (36)	7 (17)	15 (24)
This field or program is shorter, easier, less demanding	1 (5)	10 (24)	11 (17)
Other	4 (18)	6 (14)	10 (16)
Total	22	41	63

Table 16

Educational Level when Health Science Career Decision Was Made

	Not Enrolled	Enrolled	Total
	N (%)	N (%)	N (%)
Before junior/senior year of high school	3 (14)	3 (7)	6 (10)
Junior/senior year of high school	6 (27)	15 (37)	21 (33)
First year of college or community college	8 (36)	10 (24)	18 (29)
Second year of college or community college	5 (23)	12 (29)	17 (27)
Don't know/don't remember	0 (0)	1 (2)	1 (2)
Total	22	41	63

Table 17

Most Influential Source of Information

	Not Enrolled N (%)	Enrolled N (%)	Total N (%)
EOP counselor/UW faculty or class other than GIS	3 (14)	5 (12)	8 (13)
GIS pre-professional program (Millie Russell)	5 (23)	10 (24)	15 (24)
Work or volunteer experiences	1 (5)	3 (7)	4 (6)
Reading material (books, pamphlets)	2 (9)	6 (15)	8 (13)
Through discussion, contact or observing professionals in health science-related field	3 (14)	6 (15)	9 (14)
High school resources	2 (9)	2 (5)	4 (6)
Personal knowledge or self interest	3 (14)	4 (10)	7 (11)
Family (not working in field); friends, students, (whether in major or not)	3 (14)	5 (12)	8 (13)
Total	22	41	63

Table 18

Changes of Major

	Not Enrolled N (%)	Enrolled N (%)	Total N (%)
No (Pre- Health Science majors included here)	20 (91)	21 (51)	41 (65)
Yes, freshman year	0 (0)	4 (10)	4 (6)
Yes, sophomore year	2 (9)	11 (27)	13 (21)
Yes, junior year	0 (0)	3 (7)	3 (5)
Yes, senior year	0 (0)	1 (2)	1 (2)
Other	0 (0)	1 (2)	1 (2)
Total	22	41	63

Table 19

Involvement in Volunteer Work in the Health Sciences

	Not Enrolled	Enrolled	Total
	N (%)	N (%)	N (%)
No	13 (59)	14 (34)	27 (%)
Junior/senior year in high school	5 (23)	10 (24)	15 (24)
Freshman year at UW	2 (9)	7 (17)	9 (14)
Sophomore year at UW	2 (9)	4 (10)	6 (10)
Junior/Senior year at UW	0 (0)	6 (15)	6 (10)
Total	22	47	63

Table 20

Type of Organization for Volunteer Work

	Not Enrolled	Enrolled	Total
	N (%)	N (%)	N (%)
Hospital	2 (22)	14 (52)	16 (44)
Community Clinic	2 (22)	5 (19)	7 (19)
Nursing Home	2 (22)	2 (7)	4 (11)
Dental/eye/foot/office	1 (11)	3 (11)	4 (11)
Mental health hospital/ Office	1 (11)	0 (0)	1 (3)
Other	1 (11)	3 (11)	4 (11)
Total	9	27	36

Table 21

Length of Volunteer Work

	Not Enrolled		Enrolled		Total	
	N	(%)	N	(%)	N	(%)
1 month or less	0	(0)	1	(4)	1	(3)
1 to 3 months	5	(56)	13	(48)	18	(50)
4 to 6 months	0	(0)	4	(15)	4	(11)
7 to 9 months	0	(0)	4	(15)	4	(11)
10 to 12 months	1	(11)	0	(0)	1	(3)
13 to 24 months	0	(0)	2	(7)	2	(6)
2 to 5 years	1	(11)	3	(11)	4	(11)
5 to 10 years	2	(22)	0	(0)	2	(6)
Total	9		27		36	

Table 22

Most Useful High School Mathematics Class

	Not Enrolled		Enrolled		Total	
	N	(%)	N	(%)	N	(%)
Algebra	14	(67)	21	(52)	35	(57)
Trigonometry/geometry	4	(19)	9	(22)	13	(21)
Calculus	1	(5)	4	(10)	5	(8)
Other	1	(5)	1	(2)	2	(3)
None useful	1	(5)	5	(12)	6	(10)
Total	21		40		61	

Table 23

Most Useful High School Science Class

	Not Enrolled N (%)	Enrolled N (%)	Total N (%)
Chemistry	7 (32)	10 (24)	17 (27)
Biology	14 (64)	20 (49)	34 (54)
Anatomy	0 (0)	3 (7)	3 (5)
Physics	0 (0)	5 (12)	5 (8)
Other	0 (0)	1 (2)	1 (2)
None useful	1 (5)	2 (5)	3 (5)
Total	22	41	63

Table 24

Most Difficult Health Science Course

	Not Enrolled N (%)	Enrolled N (%)	Total N (%)
Chemistry	5 (24)	10 (26)	15 (25)
Physics	5 (24)	7 (18)	12 (20)
Microbiology	5 (24)	5 (13)	10 (17)
Biology	3 (14)	3 (8)	6 (10)
Zoology	0 (0)	6 (15)	6 (10)
Conjoint	0 (0)	3 (8)	3 (5)
Other	1 (5)	4 (10)	5 (8)
None difficult	2 (10)	1 (3)	3 (5)
Total	21	39	60

Table 25

Reason for Difficulty of Health Science Course

	Not Enrolled	Enrolled	Total
	N (%)	N (%)	N (%)
No background in subject area	3 (16)	8 (21)	11 (19)
No individual help; class too large	5 (16)	2 (5)	7 (12)
Poor teachers, tests, and/or texts; poor organization and/or presentation in course content	2 (11)	9 (24)	11 (19)
Personal obstacles: lack of time, motivation, interest or self discipline	4 (21)	0 (0)	4 (7)
Too much coursework; too much expected; too much memorization	4 (21)	11 (29)	15 (26)
Instructors' accent	1 (5)	2 (5)	3 (5)
Other	0 (0)	6 (16)	6 (11)
Total	19	38	57

Table 26

Easiest Health Science Course

	Not Enrolled	Enrolled	Total
	N (%)	N (%)	N (%)
GIS course	11 (52)	9 (24)	20 (34)
Biology	2 (10)	7 (18)	9 (15)
Microbiology	3 (14)	7 (18)	10 (17)
Math	1 (5)	3 (8)	4 (7)
Zoology	1 (5)	2 (5)	2 (5)
Health Education	1 (5)	1 (3)	2 (3)
None easy	0 (0)	2 (5)	2 (3)
Other	2 (10)	7 (18)	9 (15)
Total	21	38	58

Table 27

Reason for Easiness of Health Science Course

	Not Enrolled	Enrolled	Total
	N (%)	N (%)	N (%)
Course content familiar; had background in subject area	1 (5)	5 (14)	6 (11)
Course clear, understandable, not difficult	9 (43)	20 (56)	29 (51)
Instructor taught well; good explanations	5 (24)	4 (11)	9 (16)
Practical course content, experiments, demonstrations, "hands on" experience	1 (5)	6 (17)	7 (21)
Lots of individual help from instructor or TA's	2 (10)	1 (3)	3 (5)
Other	3 (14)	0 (0)	3 (9)
Total	21	36	57

Table 28

Rating of Health Science Instructors

	Not Enrolled	Enrolled	Total
	N (%)	N (%)	N (%)
Excellent	6 (29)	6 (15)	12 (20)
Good	14 (67)	26 (67)	40 (67)
Fair	1 (5)	7 (18)	8 (13)
Poor	0 (0)	0 (0)	0 (0)
Total	21	39	60

Table 29

Reasons for Rating Given to Health Science Instructors

	Not Enrolled		Enrolled		Total	
	N	(%)	N	(%)	N	(%)
Instructors are generally competent	1	(5)	3	(8)	4	(7)
Instructors know material well and communicate it effectively	3	(15)	12	(31)	15	(25)
Instructors are accessible for individual student's questions or problems	5	(25)	5	(13)	10	(17)
Instructors care about student and subject, are encouraging, friendly, helpful, enthusiastic	7	(35)	8	(21)	15	(25)
Instructors do not have time for students; uninterested in them, no one-to-one instructional attention	1	(5)	8	(21)	9	(15)
Instructors have good resource materials, demonstrations, labs, texts, and TA's	1	(5)	1	(3)	2	(3)
Other	2	(10)	2	(5)	4	(7)
Total	20		39		59	

Table 30

Feelings of Sex Discrimination

(Females Only)

	Not Enrolled		Enrolled		Total	
	N	(%)	N	(%)	N	(%)
No	11	(85)	28	(85)	39	(85)
Yes, subtle, covert rather than overt behavior, and/or attitude of male instructors indicating women students are intellectually inferior	1	(8)	5	(15)	6	(13)
Out-of-classroom behavior by male instructor or male peer belittling or insulting to women	1	(8)	0	(0)	1	(2)
Total	13		33		46	

Table 31

Feelings of Race Discrimination

	Not Enrolled N (%)	Enrolled N (%)	Total N (%)
No	17 (81)	31 (76)	48 (77)
Yes, felt slighted (or worse) by instructor because of R's race	2 (10)	6 (15)	8 (13)
Yes, felt slighted (or worse) by other students because of R's race	2 (10)	3 (7)	5 (8)
Yes, general feeling that R's race made a difference in R's treatment	0 (0)	1 (2)	1 (2)
Total	21	41	62

Table 32

Number of Health Science Courses Taken Per Quarter

	Not Enrolled N (%)	Enrolled N (%)	Total N (%)
0	0 (0)	2 (5)	2 (3)
1	6 (29)	8 (20)	14 (23)
2	10 (48)	16 (39)	36 (42)
3	5 (24)	12 (29)	17 (27)
4	0 (0)	3 (7)	3 (5)
Total	21	41	72

Table 33

Number of Hours of Study Per Health Science Course

	Not Enrolled	Enrolled	Total
	N (%)	N (%)	N (%)
1	3 (14)	1 (3)	4 (7)
2	1 (5)	2 (5)	3 (5)
3	2 (10)	0 (0)	2 (3)
4	1 (5)	3 (8)	4 (7)
5	2 (10)	1 (3)	3 (5)
6	1 (5)	6 (16)	7 (12)
7	1 (5)	0 (0)	1 (2)
8	1 (5)	1 (3)	2 (3)
10	6 (29)	6 (16)	12 (20)
11	0 (0)	1 (3)	1 (2)
12	0 (0)	4 (11)	4 (7)
13	0 (0)	2 (5)	2 (3)
14	2 (10)	1 (3)	3 (5)
15	1 (5)	2 (5)	3 (5)
18	0 (0)	3 (8)	3 (5)
20	0 (0)	2 (5)	2 (3)
30	0 (0)	1 (3)	1 (2)
36	0 (0)	1 (3)	1 (2)
56	0 (0)	1 (3)	1 (2)
Total	21	38	59
Mean	7.1	12.4	10.5

Table 34

Other Activities While a Health Science Student

	Not Enrolled	Enrolled	Total
	N (%)	N (%)	N (%)
Not working	1 (5)	5 (12)	6 (10)
Yes, for pay	6 (29)	9 (22)	15 (24)
Yes, volunteer	1 (5)	1 (2)	2 (3)
Yes, household	4 (19)	6 (15)	10 (16)
2 or more activities pursued	9 (43)	20 (49)	29 (47)
Total	21	41	62

Table 35

Hours of Work for Pay Per Week for Those Who Worked

	Not Enrolled		Enrolled		Total	
	N	(%)	N	(%)	N	(%)
5	0	(0)	1	(4)	1	(2)
8	1	(7)	1	(4)	2	(5)
10	0	(0)	2	(7)	2	(5)
12	0	(0)	3	(11)	3	(7)
13	0	(0)	1	(4)	1	(2)
14	1	(7)	1	(4)	2	(5)
15	4	(27)	3	(11)	7	(16)
16	0	(0)	4	(14)	4	(9)
17	0	(0)	1	(4)	1	(2)
18	0	(0)	1	(4)	1	(2)
19	1	(7)	1	(4)	2	(5)
20	1	(7)	4	(14)	5	(12)
24	1	(7)	0	(0)	1	(2)
25	1	(7)	2	(7)	3	(7)
30	3	(20)	0	(0)	3	(7)
32	1	(7)	1	(4)	2	(5)
40	1	(7)	1	(4)	2	(5)
43	0	(0)	1	(4)	1	(2)
Total	15		28		43	
Mean	22.1		19.0		19.4	

Table 36

Hours Per Week of Volunteer Work

	Not Enrolled	Enrolled	Total
	N (%)	N (%)	N (%)
2	0 (0)	1 (11)	1 (7)
3	1 (20)	2 (22)	3 (21)
4	1 (20)	0 (0)	1 (7)
5	0 (0)	2 (22)	2 (14)
9	9 (0)	1 (11)	1 (7)
10	1 (20	1 (11)	2 (14)
12	0 (0)	1 (11)	1 (7)
15	1 (20)	1 (11)	2 (14)
40	1 (20)	0 (0)	1 (7)
Total	14	9	14
Mean	14.4	7.1	9.7

Table 37

Hours Per Week of Household Work

	Not Enrolled	Enrolled	Total
	N (%)	N (%)	N (%)
1	2 (20)	0 (0)	2 (6)
2	0 (0)	2 (9)	2 (6)
3	1 (10)	0 (0)	1 (3)
4	0 (0)	2 (9)	2 (6)
5	2 (20)	2 (9)	4 (12)
6	0 (0)	4 (17)	4 (12)
8	0 (0)	1 (4)	1 (3)
10	2 (20)	3 (13)	5 (15)
11	0 (0)	1 (4)	1 (3)
12	0 (0)	1 (4)	1 (3)
15	1 (10)	1 (4)	2 (6)
20	1 (10)	2 (9)	3 (9)
21	0 (0)	1 (4)	1 (3)
25	0 (0)	1 (4)	1 (3)
28	1 (10)	2 (9)	3 (9)
Total	10	23	33
Mean	9.8	11.5	11.0

Table 38

Work-Experience Related to a Health Science Career

	Not Enrolled		Enrolled		Total	
	N	(%)	N	(%)	N	(%)
Yes, in a hospital, community clinic, or medical setting	4	(19)	3	(7)	7	(11)
Yes, as a teaching assistant in relevant health science course	0	(0)	2	(5)	2	(3)
Yes, as a counselor or helper in laboratory, or office, or community	3	(14)	7	(17)	10	(16)
Yes, other health related work	0	(0)	1	(2)	1	(2)
No, office work: receptionist, secretarial, clerical	1	(5)	9	(22)	10	(16)
No, household work (unpaid)	4	(19)	4	(10)	8	(13)
No, restaurant, cafeteria, or fast food work	3	(14)	3	(7)	6	(10)
No, unskilled jobs, odd job manual labor	5	(24)	5	(12)	10	(16)
Not applicable	1	(5)	7	(17)	8	(13)
Total	21		41		62	

Table 39

Person Making Health Science Career Choice

	Not Enrolled		Enrolled		Total	
	N	(%)	N	(%)	N	(%)
Myself	16	(76)	31	(76)	47	(76)
UW/EOP advisor or faculty	4	(19)	7	(17)	11	(18)
Parent	1	(5)	2	(5)	3	(5)
Other	0	(0)	1	(2)	1	(2)
Total	21		41		62	

Table 40

Marital Status

	Not Enrolled N (%)	Enrolled N (%)	Total N (%)
Single	17 (81)	31 (76)	48 (77)
Planning marriage	2 (10)	2 (5)	4 (6)
Married	2 (10)	3 (7)	5 (8)
Divorced	0 (0)	4 (10)	4 (6)
Separated	0 (0)	1 (2)	1 (2)
Total	21	41	62

Table 41

Number of Dependents

	Not Enrolled N (%)	Enrolled N (%)	Total N (%)
0	19 (90)	33 (80	52 (84)
1	2 (10)	3 (7)	5 (8)
2	0 (0)	3 (7)	3 (5)
3	0 (0)	2 (5)	2 (3)
Total	21	41	62

Table 42

Occupation of Spouse

	Not Enrolled N (%)	Enrolled N (%)	Total N (%)
Not married	19 (90)	36 (88)	55 (89)
Professional (requiring college and/or training	2 (10)	2 (5)	4 (6)
Student	0 (0)	2 (5)	2 (3)
Unskilled	0 (0)	1 (2)	1 (2)
Total	21	41	62

Table 43

Plans for Next Two or Three Years

	Not Enrolled		Enrolled		Total	
	N	(%)	N	(%)	N	(%)
Work, then return to study health sciences	4	(19)	1	(2)	5	(8)
Complete current UW health science studies then work or graduate school	1	(5)	30	(73)	31	(50)
Study health sciences at non-UW school	9	(43)	1	(2)	10	(16)
Non-health science related work	3	(14)	0	(0)	3	(5)
Currently student in non-health science field	0	(0)	9	(22)	9	(15)
Currently student in non-health science field at another school	2	(10)	0	(0)	2	(3)
Don't know	2	(10)	0	(0)	2	(3)
Total	21		41		62	

Table 44

Present Occupation (Not-Enrolled Students Only)

	N	(%)
Student	5	(25)
Housewife	2	(10)
Unemployed	3	(14)
Working in health science related field	1	(5)
Non-health science related work	10	(48)
Total	21	

Table 45

Reason for Not Continuing at the University of Washington
(Not Enrolled Students Only)

	N	(%)
For financial reasons	9	(43)
Personal, marriage, pregnancy	4	(19)
Tired of school, lack of motivation, disliked school	6	(29)
Other	2	(10)
Total	21	

Discussion

Because of the relative recency of the Health Careers Opportunity Program and the Preprofessional Program (GIS 140, 141, 142), few of the students in our sample have had ample opportunity to achieve a baccalaureate degree. Even so, it is already clear from the progress which members of our sample have made, that the road to a degree in a health science field has not been smooth for many of these minority students. From our original sample of ninety-four, only forty-six are currently enrolled at the University. Of these forty-six at least nine are no longer in a health science major, leaving thirty-five students, or 37% of the original sample remaining in a health science major as of June, 1979.

One can view the above percentage as a glass half full or half empty. On the optimistic side, obviously some EOP students are entering the program with adequate motivation and preparation, and the University is offering adequate academic, financial, and social support for these students. We have presented data indicating that students who remain enrolled tend to have higher high school grade point averages. It would be of interest to further study high school records to see if the successful students also have had more extensive high school preparation in mathematics, science, and/or English.

In addition, it is important to determine what components of University support are crucial for student success. Of particular interest would be an assessment of the impact of the Preprofessional Program and of Biology 103 on retention of students. Unfortunately our method of sample selection precluded study of the effects of these courses because all students in the sample were enrolled and no comparison group was utilized. However, EOP students do exist who have chosen to major in a health science area but who

have chosen not to take GIS 140-142 and/or Biology 103. Further research on these students and their performance at the University in comparison with those people who have taken both courses would be helpful in assessing the value of the courses designed particularly for EOP students. In addition, Physics 101, 102, and 103 enrolls a large number of EOP students with health science career interests. The effects of this course sequence should be studied as well. These studies need to be conducted so that successful programs may be continued and strengthened and unsuccessful ones eliminated or re-directed.

The fact that over half of the students in our sample are no longer enrolled at the University may not be as negative as it at first sounds. Over half of those interviewed who were no longer enrolled indicated plans to return to college to study in the health sciences within two or three years. However, most of the former students who intend to participate in further education do not intend to return to the University of Washington. Thus, to get a completely accurate picture of the number of EOP students who are able to gain entry into health science careers, longer term follow-up studies must be mounted including the evaluation of students in other schools.

The reasons students drop out of college are seldom simple. Our data indicate that about half of those dropping out did so with sub-standard grade point averages. This fact taken alone would suggest the need for better selection and/or better academic support. However, students interviewed did not see themselves dropping out for academic reasons alone but focused on the surrounding personal and social factors. There are many factors and interactions among factors that contribute to poor grades among the sample, while half of the sample who dropped out had grades adequate for continuation. Thus, it is clear that non-academic factors will continue to require the University's attention along with the academic preparation of the students.

Finally, a different approach to study of the problem might be attempted. Specifically, minority students who have successfully entered health related careers could be located, and their academic preparation studied retrospectively. Factors which appear to be important for these students could possibly be incorporated in the University's curriculum.

As we stated at the beginning of the report, this study was largely exploratory in nature. With the historical background and the description of health science programs along with the presentation of the study's statistical results, we feel the reader can learn a great deal about the participation of EOP students in the health sciences programs of the University. Not surprisingly, the data tend to provoke more questions than they answer, but hopefully this study will allow us to ask better questions and to continue to seek ways to successfully facilitate minority student entry into high level health related careers.

Reference Notes

1. Minority Students in Allied Health and Science. A Conference Report. Available from: Southern Regional Education Board, Institute for Higher Educational Opportunity, 130 Sixth Street, Atlanta, Georgia.
2. Allied Health Counselor Training Program. Program Evaluation. Available from the Institute for Services to Education, Inc., Washington, D. C.
3. Russell, M., Solomon, F., Anderson, E., and Alaba, O. First year evaluation report on the preprofessional program for minority students in health sciences 1974-1975. Preprofessional Program for Minority Students in Health Sciences, University of Washington, Seattle, 1976.
4. Russell, M., and Anderson, E. Second year evaluation report of the preprofessional program for minority students in health sciences 1975-1976. Preprofessional Program for Minority Students in Health Sciences, University Hospital, University of Washington, Seattle, 1976.
5. Russell, M., and Anderson, E. Third year evaluation report of the preprofessional program for minority students in health sciences 1976-1977. Preprofessional Program for Minority Students in Health Sciences, University Hospital, University of Washington, Seattle, 1977.
6. Russell, M., and Anderson, E. Four year summary report of the preprofessional program for minority students in the health sciences. Preprofessional Program for Minority Students in Health Sciences, University of Washington, Seattle, 1978.
7. Hodgson, T., and Lutz, L. A study of the academic records of all students enrolled in the UW Educational Opportunity Program: Autumn 1969 through Summer 1973. Institutional Educational Research Report #142. Seattle: University of Washington, Educational Assessment Center, 1975.

References

American Council on Education. Women and minorities in health fields: A trend analysis of college freshmen, Volume II. Freshmen interested in nursing and allied health professions. Washington D. C.: Author, 1977.

American Council on Education. Women and minorities in health fields: A trend analysis of college freshmen. Volume III. A comparison of minority aspirants to health careers. Washington D. C., Author, 1978.

Astin, A. W. Predicting academic performance in college, selectivity data for 2,300 American colleges. New York: Free Press, 1971.

Beck, P., Githens, J. H., Clinkscales, D., Yamamoto, D., Riley, C. M., & Ward, H. P. Recruitment and retention program for minority and disadvantaged students. Journal of Medical Education, 1978, 53, 651-657.

Begun, M. S. Legal considerations related to minority group recruitment and admissions. Journal of Medical Education, 1973, 48, 556-559.

Bingham, R. S. Equity of access. New approaches to minority admissions. Civil Rights Digest, 1978, 10, 44-50.

Birch, J. S., & Wolfe, S. An enrichment program for minority students. Journal of Medical Education, 1975, 50, 1059-1060.

Blewett, W. E. Minority students' special needs and recruitment. Journal of Allied Health, 1974, 3, 22-25.

Brown, W. F., & Holtzman, W. H. Brown-Holtzman Survey of Study Habits and Attitudes (College Ed.), New York: The Psychological Corporation, 1965.

Burke, Y. B. Minority admissions to medical schools: Problems and Opportunities, Journal of Medical Education, 1977, 52, 731-738.

Curtis, J. L. Blacks, medical school and society. Ann Arbor: University of Michigan Press, 1971.

Diekema, A. J., & Hilton, W. J. The medical opportunities program: An approach toward increasing minority enrollments in health professional schools. College and University, 1972, 47, 201-210.

Dube, W. F. Datagram: Medical student enrollment, 1972-73 through 1976-77. Journal of Medical Education, 1977, 52, 164-166.

Dube, W. F. Datagram: Socioeconomic backgrounds of minority and other U. S. medical students, 1976-77. Journal of Medical Education, 1978, 53, 443-445.

References (continued)

Evans, D. A., & Jackson, E. G. Deans of minority student affairs in medical schools. Journal of Medical Education, 1976, 51, 197-199.

Evans, D. A., Jones, P. K., Wortman, R. A., & Jackson, E. B. Traditional criteria as predictors of minority student success in medical school. Journal of Medical Education, 1975, 50, 934-939.

Flexner, A. Medical education in the United States and Canada. (In Carnegie Foundation for the Advancement of Teaching. Bulletin, No. 4., 1910)

Gardner, K. D., Bokman, W. M., & Tatsuguchi, E. Minority student education at the University of Hawaii School of Medicine. Journal of Medical Education, 1972, 47, 467-472.

Geertsma, R. H. A special tutorial for minority medical students: An account of a years' experience. Journal of Medical Education, 1977, 52, 396-403.

Gordon, T. Applicants for 1976-77 first-year medical school class. Journal of Medical Education, 1977, 52, 780-782.

Gunn, L. N. Health careers information system. Journal of Allied Health, 1975, 4, 31-33.

Haney, R., Michael, W. B., & Martois, J. The prediction of success of three ethnic samples on a state board certification examination for nurses from performance on academic course variables and on standardized achievement and study skills measures. Educational and Psychological Measurement, 1977, 37, 949-954.

Haynes, A. Influence of social background in medical education. Journal of Medical Education, 1973, 48 (Supplement), 45-48.

Jackson, R. E. The effectiveness of a special program for minority group students. Journal of Medical Education, 1972, 47, 620-624.

Johnson, W. L. Admission of men and ethnic minorities to schools of nursing, 1971-72. Nursing Outlook, 1974, 22, 45-49.

Kaufert, J., Martinez, C., & Quesada, G. A preliminary study of Mexican-American medical students. Journal of Medical Education, 1975, 50, 856-866.

Lea, J., & Farias, H. A summer health sciences experience for minority group students. Journal of Medical Education, 1972, 47 903-904.

Levine, H. G., Williams, L. B., & Bruhn, J. G. Six years of experience with a summer program for minority students. Journal of Medical Education, 1976, 51, 735-742.

References (continued)

McPhail, I. P. A summer reading/study skills program for black and minority health professions students. Reading World, 1978, 18, 48-66.

Morais, H. M. The History of the Negro in Medicine. New York: Publishers Co., 1968.

Nelson, B. W., Bird, R. A., & Rogers, G. M. Expanding educational opportunities in medicine for black and other minority students. Journal of Medical Education, 1970, 45, 731-736.

Nelson, B. W., Bird, R. A., & Rogers, G. M. Educational pathway analysis for the study of minority representation in medical school. Journal Medical Education, 1971,46, 745-749

Odegaard, C. E. Minorities in medicine: From receptive passivity to positive action 1966-76. New York: Josiah Macy, Jr. Foundation, 1977.

Orque, M. S. Health care and minority clients. Nursing Outlook, 1976, 24, 313-316.

Ortiz, G., & Kendler, K. S. The New York medical college summer program: Remedial education for medical school admission. Journal of Medical Education, 1974, 49, 694-695.

Perry, R., Philips, B. U., & Mahan, M. A follow-up evaluation of a summer health career program for minority students. Journal of Medical Education, 1976, 51, 175 180.

Quinones, M. A., & Harmon, W. M. Training minorities for health careers: The Newark experience. Journal of Allied Health, 1975, 4, 19-24.

Riedman, L. Toward equal educational opportunity: Affirmative admissions programs at law and medical schools. Commission on Civil Rights, Washington, D. C. Available from: Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

Roberts, D., & Plunkett, R. A. Selected keys to open the door to minority student participation in health careers. Journal of Allied Health, 1974, 3, 40-49.

Sue, S., Sue, D. W., & Sue, D. W. Asian Americans as a minority group. American Psychologist, 1975, 30, 906-910.

Sullivan, L. W. The education of black health professionals. Phylon, 1977, 38, 181-193.

Waldman, B. Economic and racial disadvantage as reflected in traditional medical school selection factors. Journal of Medical Education, 1977, 52, 961-970.

References (continued)

Wellington, J. S., & Montero, P. Equal educational opportunity programs in American medical schools. Journal of Medical Education, 1978, 53, 633-639.

Wyatt, G. E., Bass, B. A., & Powell, G. J. A survey of ethnic and sociocultural issues in medical school education. Journal of Medical Education, 1978, 53, 627-632.

Bibliography

Abad, V., Ramos, J., & Boyce, E. A model for delivery of mental health services to Spanish-speaking minorities. American Journal of Orthopsychiatry, 1974, 44, 584-595.

An Exploratory Evaluation...of U. S. medical schools' efforts to achieve equal representation of minority students. Office of Health Resources Opportunity, Health Resources Administration (DHEW), Rockville, Maryland. December, 1977.

Brewer, W. R., DuVal, M. K., & Davis, G. M. Increasing minority recruitment to the health professions by enlarging the applicant pool. The New England Journal of Medicine, 1979, 301, 74-76.

Bryan, D. S. & Cook, T. S. Redirection of school nursing services in culturally deprived neighborhoods. Journal of School Health, 1969, 39, 247-248.

Center for Minority Group Mental Health Programs. Division of special mental health programs. Active grants (abstracts). National Institute of Mental Health (HEW), Rockville, Maryland. Center for Minority Group Mental Health Problems. January, 1978.

Christmors, J. J. How our health system fails minorities: Systematic defects and systemic discrimination. Civil Rights Digest, 1977, 10, 1, 3-11.

Clemendor, A. A., & Moore, O. N. A premedical summer program for disadvantaged students. Journal of Medical Education, 1978, 53, 658-660.

Curtis, J. L. Minority student success and failure with the national intern and resident matching program. Journal of Medical Education, 1975, 50, 563-570.

Diekema, A. J. The medical opportunities program revisited: An assessment of admission, enrollment and retention of minority students in health professional schools. Journal of the American Association of Collegiate Registrars and Admissions Officers, 1974, 50, 60-75.

Dube, W. F. Datagram: Women enrollment and its minority component in U. S. medical schools. Journal of Medical Education, 1976, 51, 691-693.

Fair, M. H. The myth of the "Free Ride" through college. Journal of Non-White Concerns, 1976, 4, 174-180.

Health of the Disadvantaged--Chart Book. Health Resources Administration (DHEW), Bethesda, Maryland. September 1977.

Bibliography continued

Hedges, L. V., & Majer, K. An attempt to improve prediction of college success of minority students by adjusting for high school characteristics. Education and Psychological Measurement, 1976, 36, 953-957.

Hunter, G. T. Health care through Head Start. Children, 1970, 17, 149-153.

Jenkins, S. & Morrison, B. Ethnicity and service delivery. Paper presented at the Annual Conference of the American Orthopsychiatric Association, New York, 1977.

Johns, H. M. Almost Nothing, MH, 1976, 60, 21-28.

Johnson, M. C. Minority and nonminority medical students' perceptions of the medical school environment. Journal of Medical Education, 1978, 53, 135-136.

Minority students in allied health and science: A conference report. Southern Regional Education Board. Institute for Higher Educational Opportunity. Atlanta, Georgia, April, 1976.

Murphy, B. Minorities in medicine. Opportunity, 1972, 2, 4-19.

Myers, V. Survey methods for minority populations. Journal of Social Issues, 1977, 33, 11-19.

Myers, V. Toward a synthesis of ethnographic and survey methods. Human Organization, 1977, 36, 244-251.

Navar, L. G. Hispanic student-scientists. La luz, 1977, 6, 25-26.

Pedrini, B. C., & Pedrini, D. T. Evaluating experimental and control programs for attrition/persistence. The Journal of Educational Research, 1978, 71, 234-237.

Pedrini, B. C., & Pedrini, D. T. Multivariate prediction of attritional persistence for disadvantages and control collegians. College Student Journal, 1977, 11, 239-242.

Philips, U., Mahan, J. M., & Perry, R. R. A formative and summative evaluation model for special educational programs. Journal of Medical Education, 1976, 51, 836-843.

Pierce, W. D. Funding and Deinstitutionalization: The impact on minority community health centers. Journal of Black Psychology, 1977, 4, 82-90.

Proceedings of the Western Regional Working Conference on ethnic minorities and the health professions, Salt Lake City, 1976. Western Interstate Commission for Higher Education, Boulder, Colorado, March 1976.

Robin, F. Education in action, school year 1975-1976, New York City Board of Education, Office of Educational Evaluation, Brooklyn, NY 1976.

Bibliography continued

Shapiro, R. Discrimination and community mental health. Challenging institutional racism. Civil rights Digest, 1975, 8, 1 , 18-23.

Simmons, J. (Ed.) Making health education work. American Public Health Association, Washington, D. C. July, 1976.

Stine, O. C., Saratsiotis, J. S., & Furno, O. F. Selected neurologic and behavioral findings of children entering an early school admissions project from culturally deprived neighborhoods. Journal of School Health, 1969, 39, 470-477.

The struggle for equal opportunity: Strategies for social we fare action. Columbia University Press, New York, 1977.

Sue, S. Community mental health services to minority groups: Some optimism, some pessimism. American Psychologist, 1977, 32, 616-624.

Thomas, C. W. The significance of the ethnocentrism factor in mental health. Journal of Non-white Concerns, 1974, 2, 60-69.

Thomas, C. S., & Lindenthal, J. J. Depression of the oppressed. MH, 1975, 59, 12-14.

Tolbert, G. P. Meeting the health needs of minorities and the poor. Phylon, 1977, 38, 225-235.

Weaver, J. L. Health care costs as a political issue: Comparative responses of Chicanos and Anglos. Social Science Quarterly, 1973, 53, 846-854.

Weiss, C. H. Survey researchers and minority communities. Journal of Social Issues, 1977, 33, 20-25.

Weymouth, R. J., & Wergin, J. F. Pilot programs for minority students: One school's experience. Journal of Medical Education, 1976, 51. 668-670.
U. S. Government Printing Office, Washington, D. C. May, 1977.

The white house conference on handicapped individuals: Volume II. Final Report. Part C, U.S. Government Printing Office, Washington, D.C. May, 1977.

Winer, J. A., Pasca, A. E., Dinello, F. A., & Weingarten, S. Nonwhite student useage of university mental health services. Journal of College Student Personnel, 1974, 15, 410-412.

Zaner, T. Equal employment opportunity and affirmative action programs: Implications for industrial health organizations. Occupational Health Nursing, 1975, 23, 16-19.

Zimmerman, W. S., Parks, H., Gray, K., & Michael, W. B. The validity of traditional cognitive measures and of scales of the study attitudes and methods survey in the prediction of the academic success of educational opportunity program students. Educational and Psychological Measurement, 1977, 37, 465-470.

APPENDIX A

ID # _____

Interviewer _____

Health Sciences Survey (EAC-514)

Name _____ Phone _____

Date _____ Time _____ Result _____

_____ _____ _____

_____ _____ _____

THIS IS _____ OF THE UNIVERSITY OF WASHINGTON EDUCATIONAL ASSESSMENT CENTER. WE ARE CONDUCTING A SURVEY OF STUDENTS WHO ENTERED THE UW DURING AUTUMN, 1975, AND HAD AN INTEREST IN THE HEALTH SCIENCE PROGRAM. I WOULD LIKE TO ASK YOU ABOUT YOUR EXPERIENCE AT THE UW, AND YOUR PLANS FOR THE FUTURE. YOUR PARTICIPATION IS VOLUNTARY, AND WILL HAVE NO EFFECT ON YOUR CURRENT OR FUTURE STATUS AT THE UW. YOUR RESPONSES WILL BE HELD IN CONFIDENCE, AND WILL ASSIST IN PROGRAM PLANNING FOR NEW EOP STUDENTS.

(CONDUCT INTERVIEW OR MAKE APPOINTMENT. ANSWER ANY QUESTIONS OR REFER PERSON TO THE EAC FOR MORE INFORMATION)

1. In which Health Science major are you (were you last) registered?

_____

(If R says only "Health Sciences", probe for exact major.)

2. Who would you say was the single person who was <u>most</u> important in helping you make your decision to enter the health sciences?

_____

(If only a name is given, probe for position or relationship.)

3. What was your primary reason for selecting (major)?

_____

4. When, in your educational career, did you decide on this major?

_____

5. What source of information was most influential in your choice of a major?

_____

6. While at the UW, did you change majors?

   1. No

   2. Yes - At what point? _____

7. Did you ever work as a volunteer or paid employee in your major field?

   1. No

   2. Yes-a At what point? _____

      b What type of organization or program? _____

      c For how many months did you do this work? _____ months

8. Of the math courses you took in High School, which proved to be most useful for your major at the UW?

   _____

9. Of the science courses you took in High School, which proved to be most useful?

   _____

10. a. Which course in the Health Sciences did you find most difficult?

    _____

    b. What about it caused this?

    _____

11. a. Which course in the Health Sciences did you find easiest?

    _____

    b. What about it caused this?

    _____

12. a. Overall, would you rate your instructors in Health Sciences as

    1 Excellent

    2 Good

    3 Fair

    4 Poor

    b. What are your reasons for this rating?

    _____

13. Did you encounter any discrimination at the UW because of your sex?

    1. No

    2. Yes - In what instances? _____

14. Did you encounter any discrimination at the UW because of your race or ethnic group?

    1. No

    2. Yes - In what instances? _____

15. How many Health Sciences courses do (did) you take during a typical quarter?

    _____

16. About how many hours a week do (did) you study for each Health Science course?

    _____ hours

17. While you are (were) a student in Health Sciences at the UW, are (were) you also working regularly for pay, as a volunteer, or at household responsibilities?

    1 Not working

    2 Yes - For pay - How many hours a week? _____

    3 Yes - Volunteer - how many hours a week? _____

    4 Yes - Household - How many hours a week? _____

18. Is (was) the work related to your studies in Health Sciences?

    1 Yes - What kind of work? _____

    2 No - What kind of work? _____

19. Who do you feel is (was) responsible for making most of the decisions about your career at the UW?

    _____

20. Are you (were you while a student at the UW) single, planning to get married, married, divorced, separated or widowed?

    1 Single
    2 Planning
    3 Married
    4 Divorced
    5 Separated
    6 Widowed

21. How many dependents do (did) you have? _____

22. (If married) What is (was) your spouse's occupation? _____

23. What are your plans for the next two or three years? What do you expect to be doing?

_____

_____

TERMINATE INTERVIEW FOR PRESENTLY ENROLLED STUDENTS

* * * * * * * * * * * * * * * * * * *

24. What is your present occupation?

_____

25. What was the single most important reason you decided not to continue as a student at the UW?

_____

_____

Health Sciences Survey (EAC-514)

Information for Interviewers

Background

As part of an extensive evaluative study of the operation of the Educational Opportunities Program (EOP) at the UW, students in the Program who are or have been registered in majors in the Health Sciences will be interviewed to obtain information on their preparation for University level work in the field, their experiences as students, and their plans for future careers.

Assignments

The sample members names, most recent addresses and telephone numbers will be listed. As is true for all studies with students, much of this information is no longer accurate. Interviewers will have to make sustained and innovative efforts to track these respondents. In particular, former students will be hard to reach, but even students with current registration may require tracking. The list will indicate the date of the most recent information.

Current students must be contacted within the next two weeks, before the end of the Quarter. Former students can also be interviewed immediately. Attempts to contact should continue until you have exhausted all possibilities of reaching that person.

Question-by-question review

Heading - Fill in the Respondent's I.D. #, name and telephone number. Record all contact attempts, including the result, and any information which will aid you or another interviewer to locate the respondent.

When the respondent is reached, read the introduction, introduce yourself, and answer any questions. Conduct the interview at once, if at all possible, or make a firm appointment for a time in the immediate future.

Word the questions appropriately for current and former students.

Q. 1. A major is a specific Department or Program. If R is unsure, record the names of courses taken or typical fields of study.

2. Refers to any influential person at any stage in the respondent's life, including parents, teachers, counselors, etc. It is not necessary to obtain the name, but position or title should be recorded.

3. Probe for single most important reason, whether this has to do with personal (income, prestige, role-modeling, etc.) or with social (importance of field, service) factors.

4. Record year in school or stage in education (9th grade, at the end of junior high).

Q. 5. Source can be individual (conference with mentor, job experience) or general (TV series, career course in school).

6. Point refers to stage in academic career, rather than date.

7. a. Point refers to stage

b. The question seeks type of organization or program, rather than the name (summer camp for handicapped children, rather than Camp Sehalee, nutrition supplemental program for the elderly, rather than Baptist Golden Years Club).

c. Total number of months for all positions combined.

8. Again, here we are seeking the exact content field, i.e., Plane Geometry rather than Math 3b.

9. Same as Q. 8.

10. a. If R does not remember the exact name and number of the course, probe for its level and content area.

b. Probe for as many reasons as possible. Reasons must refer to specific characteristics or procedures.

11. Same as Q. 10.

12. a. Read ratings, and ask for general rating for the department or program as a whole. If R has been in more than one major, however, it may be possible to obtain separate ratings for each.

b. Probe for specific reasons.

13. If yes, probe for specific instances or events.

14. Same as Q. 13.

15.

16.

17. Refers to regular work, requiring some consistent number of hours per week over a sustained period. Record as many answers as are appropriate.

18. If yes, probe for ways in which the work is related, as well as for exact description of the work. If no, obtain only the description of the type of work.

19. Probe for role, position or title of the person R feels is most influential such as self, parent, instructor, EOP advisor, etc.

20.

21.

Q 22. Probe for exact description.

23. Probe for both specific and more general intentions.

24. Probe for specific description of work or activity.

25. Probe for specific reason.